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THE CULTIVATOR.

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J. J. THOMAS, ASSOCIATE EDITOR, UNION SPRINGS, N. Y.

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OUR THIRTIETH YEAR.

THE PUBLISHERS OF THE CULTIVATOR, in submitting to the public the opening Number of its THIRTIETH YEAR, could desire no better record as to its Past, or recommendation as to its Future, than is afforded by its previous volumes. It is probable that over FOUR HUNDRED THOUSAND of these Volumes have been written and read by the Farmers of every part of the United States! Who can calculate the influence for good that has thus been exerted, or measure the impulse thus imparted to the intelligent cultivation of our soils and the increased profitableness of our farming?

The recurrence of the New Year never fails to afford fresh evidences of public spirit on the part of those who appreciate the objects to which THE CULTIVATOR is devoted and the task in which it has been so long and steadfast a laborer. Even amidst the competition of a Press ever more prolific in its issues and more eager in its claims, the friends of Improved Agriculture have never forgotten that a Periodical seeking to induce Thought and promote Industry,—rather than to amuse an idle hour, or advance sectarian interests, or inflame political passions—can only be supported and circulated by their earnest intervention and assistance. It is this Voluntary Effort on the part of prominent gentlemen in their several localities, together with the unequalled number of its Practical Contributors,—to which, more than anything else, THE CULTIVATOR owes its long and useful life.

Standing at a period in which the successful prosecution of our Agriculture is of more momentous importance than ever before, the old Friends of THE CULTIVATOR are now especially solicited to renew their kind offices in its behalf, and every thinking Farmer into whose hands this number may come, is invited to exert his influence to extend its Circulation. Published at too low a price to admit of offering tempting bounties or large commissions, THE CULTIVATOR bases its claim solely upon the actual pecuniary profit which it is believed every intelligent reader must derive from its perusal, in proportion to the price it costs him.

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Can not the Reader of these paragraphs recall the names of ten, or twenty, or fifty other Farmers in his own vicinity, whom but a few words from him would probably lead to subscribe? The terms of subscription are published at length on the last page, and the attention of all is directed to them, with the single additional remark that it is the month of January in which, of all the seasons of the year, one can most successfully secure subscriptions for such a Journal. "NOW is the time."

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The Cultivator & Country Gentleman.

A GLANCE FORWARD.

One who predicts, every night, a stormy day for the morrow, will be quite sure to turn out a true prophet, if he only continues his prognostications long enough. Thus a London paper, devoted to the interests of the Grain trade, took the position when the war broke out here in 1861, that our crop of 1860 must be all kept at home for the wants of our armies, and that we should have none of *that*, of any consequence, to export. Later in the season, when our wheat was carried over the sea in vast quantities, its prophecy was that our country population had been so thinned out by army enlistments that we could not raise much of a crop in 1861, and there would certainly be none of *that* to sell to hungry Britons. And when we pointed out, a year ago last summer, that we never before had had such an abundance of grain to dispose of, and when this statement came to be verified by the shipments of last winter and spring and summer, there came a repetition of the prophecy, with reference to the crop of 1862; and Englishmen were assured in effect that as there would be none of *that*, at any rate, to be sent abroad, they might intervene in our affairs just as well as not, without endangering their own supplies of food. Again we asserted that the country as a whole was proving wonderfully productive, that scarcity of labor had not yet begun to interfere with our farming, and that the yield of the United States in 1862 would afford nearly or quite as heavy a surplus as had been the case the previous year. And this assertion has been verified by shipments during the past autumn, since the new crop came in, without a parallel we believe in the previous history of the grain trade of the country.*

And now our soothsayer, not a whit discouraged by the dawning of clear sunshine and bright skies each time he has heretofore gone to bed with the prediction of a rainy morning on his lips, has once more come forward with vaticinations of a storm. In 1863 he is quite sure we shall have no surplus of grain to sell, even if we are not in a condition of scarcity ourselves. Have not American writers often shown that the soils of all the eastern States are in a condition of great exhaustion, and is not the great West comparatively depopulated by the last great calls for soldiers? Such is the burden of his song.

And we take the matter up—passing by the nonsense

* "In 1860 we imported from the United States 2,294,470 cwts. of wheat flour, 4,937 cwts. oatmeal, and 7,617 cwts. of Indian corn meal. In 1861 the quantity received from America was 3,794,865 cwts. of wheat flour, and 9,000 cwts. of Indian meal. This year the quantity of these has been even larger."—London Mark Lane Express, Nov. 17. [This statement is of FLOUR simply, not of Wheat in the grain.]

that has been so often repeated and so frequently refuted, about the exhaustion of our lands at the East, because we find it more profitable to devote them to other purposes than to wheat-growing—to say that it would not now surprise us if these persistent auguries should at last be partially verified in the event. The weather has been fine so long, that warnings of the coming rain ought not, this time, to be totally disregarded.

Indeed, our columns will bear us witness that even while showing the abundance that has reigned here during the past two years, we have not ceased to urge upon our farmers the almost incalculable importance to the country and to themselves of straining every nerve to maintain and promote the farther productiveness of their lands. Here and wherever we have had an opportunity of gaining the farmer's ear, we have pointed out that seasons of abundance and low prices, have almost invariably been succeeded by those of smaller crops and higher rates; and that this is more than ever likely to turn out the case, in the present instance, with war on a scale of such magnitude going on among us, and with a constantly increasing draft from the field of agricultural labor into that of battle—from the ranks of producers into those of consumers. The million of men whom the Secretary of War now estimates to be engaged, on the part of the North, in the great struggle to uphold our government and put down treason,—have many of them gone forth since the crop of 1862 was safely housed; and it must be borne in mind not only that a part of them came directly from the farm, but also that the consumption of wheat by them all, is immensely greater than it would be if they were at home instead of in the camp. At home, there is a variety of food constantly before them; fresh meats, potatoes, and the like, constitute a far larger proportion of their diet, than when, in the camp, they are forced to make flour in some form really their "staff of life." At home a degree of economy is practiced, incompatible with the hurry or the negligence of large forces on the march. At home, now and then, a barn is burnt or a grain-laden vessel sunken; in the movements of armies, stores of immensely greater importance are subject to capture, or must be abandoned or destroyed in hasty movements, or are spoiled from lack of care and from necessary exposure.

Thus it becomes an object of great moment that no exertion should be omitted which has a bearing direct or indirect on the harvests of the coming year. As was well said in an article published a fortnight ago,—if Agricultural Societies and Farmers' Clubs have ever been made, or can ever be made, "of any practical utility, they were never more needed than at the present time." And the same is true with reference to other sources of agricultural information. It is no time to neglect them now.

Some months ago we gave the Census returns in 1860, of the Agriculture of this State, and showed how clear and strong was the evidence they afforded that during the preceding ten years our farmers have made a vast advance, and this mainly in three directions—in the extent to which they are employing improved implements and machinery,—in the greatly increased productiveness of their domestic animals, owing to the wider and more general dissemination of improved breeds of stock,—and in the enlarged and more profitable productiveness of our orchards and gardens. It is to just these three objects that our Agricultural Societies have chiefly directed the competition of their Shows and the encouragement of their prizes; and in the progress that has been accomplished in these three directions, we have evidence enough that such societies have performed a great and good work among us. But we cannot forbear adding "that behind and beneath the Agricultural Society, there has been at work the more quiet but not less effective influence of the Agricultural Journal, not only to introduce and disseminate the better implements, and breeds of animals, and kinds of fruit, which give variety and vitality to the agricultural exhibition, but also to promote deeper and more extended observation on the part of the farmer, to discuss the systems and processes of the Farm,—the means and rationale of the improvement of the land, as well as of the machinery by which it is cultivated, or the crops and stock to which it is devoted." And we cannot but appeal to our readers, to extend increased support to their Agricultural Journal, not less by efforts to promote its larger circulation in this emergency, than by continued contributions from the stores of their own experience, to enrich its columns for the benefit of others.

Early Care of Fattening Animals.

Almost every farmer fattens annually a supply of pork and beef for home consumption, and of the former, many who do not claim to be farmers, grow more or less, while the markets are largely supplied from the "few to sell," kept by every occupant of a farm. Yet, with all this experience, from the want of the best management, this fattening is at least one-fourth more expensive than it need to be. A proper system of care and feeding would produce results so superior to those commonly attained, as to astonish the majority of farmers. We propose to offer some thoughts on two errors in the rearing of our pork and beef, which, although often shown up, still prevail far too widely among us.

The first is the neglect of the growing animal before the fattening process is begun. A pig, for instance, should live only to make pork—should be kept growing from birth until fit for the knife of the butcher. But this treatment is seldom given save by those who seek to make pork of pigs at eight to ten months old. Some few are very successful in this; others attempt it and fail—and most frequently fail from not keeping up in the animal the most rapid growth consistent with health and vigor. Others (in the case of swine) feed well for a time, but in autumn, when from short pastures the dairy slops decrease, and the pumpkins, apples, and small potatoes, are not yet ripe or convenient for feeding; no provision is made to supply the lack, and the pigs cease to fatten if they do not fall away, and their thrift receives a check from which they do not easily recover. By-and-by the farmer begins in earnest to fatten them, but finds that it takes as much extra feed to get them improving again, as it would to have kept them during this interval in the best condition, and that he has lost all they would have gained—from one to two pounds per day—by this want of better management.

In making beef we lose from the same causes. A calf kept winter and summer in thrifty growth, at two years old will make as much or more beef, than one neglectfully kept at twice the age. The profit will all be found on the side of the two-year old, the loss on the four-year old, yet the owner of the latter has pursued his system, if system it may be called, with the idea that he was saving money. Keep the thrifty animal two years longer in the same way, and something really handsome in the way of

beef will be the result, but the starveling can never pay the expense of its rearing and feeding. We do not pretend to say that farmers usually neglect their stock to so great an extent, but we do say from what we see and know, that a large majority of them lose largely from neglect in this direction.

Another source of loss from want of timely attention, is found in the delay to commence seasonably—early in autumn—the fattening process. The animal heat is kept up at the expense of the food consumed—in mild weather that is converted into fat, which in cold is burned up as fuel. It is as much burned up as the wood with which we feed our stoves, in reality, though by a different process. This has been fully and repeatedly explained, and ought to be well understood; still we find many farmers neglect to take advantage of this physiological fact in the care of their animals. In severe cold weather, under the usual exposure, no improvement can be made even with the most liberal feeding, and comparatively mild winter weather is far less favorable than autumn for fattening.

Much food is wasted by the delay in its consumption by fattening and dairy stock. We see, every year, tons of pumpkins frozen and lost, which would have helped largely as the grass began to fail, and should have been fed out from the time of the first frost until all were used; while hundreds of bushels of fruit, apples particularly, rot under the trees or are made into cider without profit, which might have been converted into pork or beef and butter, and large quantities of roots and vegetables are wasted, or only partially used, without care or economy in collecting or feeding. These should not alone be depended upon, of course, but with more nutritious food, ground, and cooked or fermented for swine, a good start would be given at but slight expense to our fattening animals. Before Christmas the process could be completed—often before Thanksgiving-day would be the better period. The markets are quite as favorable, take the extra expense of winter fattening into account, in November, as later in the season.

Various other considerations in regard to the early care of fattening animals occur to us, which will also suggest themselves to our readers, but we propose again to recur to the subject, more particularly to the most economical methods of feeding for the butcher.

THE RIBSTON PIPPIN.

Downing remarked sixteen years ago, that this apple stood as high in Great Britain as the Bank of England. In the northern portions of our own country it has been occasionally found very fine; but generally, it is not a popular fruit, and has nearly passed out of cultivation. The English *Cottage Gardener* says that it has greatly deteriorated in quality in England,—"the trees, thriving indifferently for a very few years, either die off or linger on a wretched existence, the dead branches almost equalling the live ones in number." It also states that "many of the apples are only second or third rate—having germs of decay, black specks, &c." This will doubtless be given as another example of the natural tendency of all varieties to run out from age. Unfortunately, however, for the theory, there are older varieties that maintain all their original vigor. In this country, also, some of the pears that were the first to "run out," happened to be the newer varieties—while some quite old sorts that long ago failed in certain localities still flourish in the finest condition in others. The running out must, therefore, be from other causes than age.

Removing the Wood from the Bud in Budding.

We often receive inquiries on this subject—whether it is best to remove the small woody shield from the interior portion of the bud before insertion, or to allow it to remain. We are not prepared to answer the question with entire satisfaction, and we would like the result of experiments from others, if they have any to report of a distinct character; mere opinion would be of less value. In the early history of the nursery business in this country, when the most successful nurseryman was supposed to be he who had the greatest number of secrets of trade, an inquisitive visitor inquired of a successful tree raiser, "Do you take the wood out, or leave it in?" The answer was, "sometimes we take it out, and at other times we leave it in." This not being satisfactory, the further question was put, "under what circumstances do you prefer to remove it, or to allow it to remain?" The non-committal nurseryman answered, "when we think it would do best to take the wood out, we do so; but when it appears likely to succeed better with the wood untouched, we do not disturb it." The questioner gave up in despair.

Our own opinion is that if stocks are in good thrifty condition, and the buds properly matured so that but little wood need be taken, it makes very little difference, and therefore its removal is needless labor. The practice of most nurserymen corresponds with this opinion. Theory, however, has been adverse to the retention of the wood. For it is a well known fact in vegetable physiology, that all the new wood that is sucessfully formed each season is deposited from the bark *outside* of all the previous wood, and between the wood and bark; consequently, when a bud with a wood face is set under the bark, no new wood is formed or deposited under that face, but only at the *edges*, where the bark rests on the wood of the stock. The wood, therefore, that is allowed to remain, is entirely beneath the new wood, and forms no adhesion to it, and consequently becomes dead and of no use. If we mistake not, however, the same result in substance, takes place when the shield of wood is taken out of the bud, adhesion only taking place at the edges. In cutting out the bud usually, if the shoot is sufficiently ripened, a very small portion of wood need be cut off from it—a very thin shaving, which can scarcely effect the tree at all, after it has grown to be an inch in diameter, or saleable size. The removal of the wood, in some instances, by forming a small cavity, and preventing that perfect fit between stock and bud that must take place when the bud is cut off smoothly and evenly with a sharp knife, may be positively detrimental. In some instances, more especially in budding the cherry, while the stick of buds is green and imperfectly matured, the operation succeeds best by cutting quite freely into the wood, which preserves the necessary moisture and rigidity till adhesion has taken place. Some experienced budders have asserted on the other hand, that the best success is attained only in the season, when the cambium is yet watery, by the removal of the wood; but practice in both ways has not confirmed the opinion. One thing however is certain—that generally the bud does not take so well, and the new growth is more liable to break off, if much wood is taken and left on the bud, especially if it is well matured and hard.

[For the Country Gentleman and Cultivator.]

THE GROWTH OF FOREST TREES.

EDITORS COUNTRY GENTLEMAN—In your paper of Nov. 13th, is an extract from the notes of the editor of the Maine Farmer, on the subject of trimming and pruning forest trees. I agree entirely with the writer in all he says as to *thinning*, but *trimming* and *pruning* is a work requiring too much judgment and knowledge of the habits of trees to be lightly entered upon. For example—the writer says he knows "of several wood-lots where it is the practice of the owners, not only to cut for fire-wood in the fall, such trees as are being crowded in their growth, and are beginning to decay, but to prune in the spring such trees as need to have their superfluous limbs removed." Now if the thinning is properly done, the pruning is unnecessary; but to prune trees in the winter, under any circumstances, is highly injurious, especially to a forest tree, which should have a clear healthy stem from the root upwards. If a tree is pruned in the winter or spring, while the sap is dormant or ascending, the wound remains cankering and festering for months; if pruned in the autumn, while the sap is descending, the wood-forming process being then in great vigor, the wound made by the pruning knife at once commences to heal, and there is no ugly rotten hole left in the tree to mar its evenness of grain, when the time comes to cut it for timber, plank or boards.

The same writer gives an account of the effect of early and annual pruning of forest trees in England, and he mentions "*an oak of* 3 *feet in height, planted in* 1805, *which in* 1832, (*a period of growth of* 27 *years,*) *attained a circumference of* 21 *inches; a beech of* 3 *feet* 9 *inches high, had a growth in the same period of* 27 *inches; an elm of* 3 *feet* 10 *inches, had increased to a circumference of* 32 *inches, and an Italian poplar of* 4 *feet, reached a girth of* 44 *inches.*" This growth seemed to me to confirm an opinion which I have long entertained, that the less pruning forest trees receive, even if it be done at the right season, the better; of single specimen trees planted and reared with care and culture, I have nothing to say.

After reading the article I sallied out among my own plantations, which are of considerable extent, and measured the growth of trees of my own, which were planted as nature usually plants, very thickly, but which have been thinned from time to time as the trees crowded each other, but never pruned. These plantations were commenced in the spring of 1847, most of the trees being less than 3 feet, and none of them more than 8 or 9 feet in height, those above 3 feet being generally white maples. The soil is rough, gravelly and hungry, and the only advantage the trees have had, the ground being too rough for plowing or trenching, arising from their being put into the ground so closely that they protected each other:

	Circumference. Measured 4 feet from ground.
White maples, 1847,	40 to 45 inches.
Rock maples, 1848,	24 to 26 "
Norway maples, 1848,	26 to 32 "
English oaks, 1847,	25 to 28 "
Pin oak, 1848,	31 "
Overcup white oak, 1849,	22 "
White oak, 1848,	19 "
Chestnut oak, from seed, 1849, seedling,	17 "
American elm, from seed, 1847,	32 "
Spanish chestnut, 1848,	33 "
Canoe birch, 1848,	29 "
Scotch larch, 1847,	25 to 30 "
Norway spruce, 1847,	26 to 31 "
Austrian pine, 1847,	25 to 28 "
Scotch fir, 1847,	24 to 29 "
English silver fir, 1847,	28 "
White pine, 1848,	27 to 31 "
Italian poplar,	45 "

I had only time to measure some fifty trees, and I selected the best specimens of each variety, but those planted in the years named run very evenly. The trees which had the most space, at the same time receiving sufficient protection from their neighbors, have done the best in point of circumference, but are of less height; they are all thrifty however, and the gain in wood is probably equal. The English oaks yield an abundant crop of acorns, which the sheep seek for and eat greedily, forming quite an important item in their food at this season of the year. I could never do much in single tree planting; it is, in the exposed situation of my land with an ungenial soil, waste labor; but in masses I can make trees grow almost as fast as corn, and quite as profitably. Any farmer can make a forest, if he will plant his seed in a large bed and let them remain there a year or two, then take them up and set them out in the place they are intended to remain, keeping it enclosed and free from cattle, provided he will plant a tree for every step he takes. R. S. FAY.

Lynmere, Lynn, Mass.

The foregoing facts, kindly communicated by Mr. FAY, will be read with interest, especially by those who are conversant with the changes effected at "Lynmere" by the plantations to which they refer. Over rocky hills, and around the lake from which the place derives its name, on land originally bare and in appearance almost barren, there have been produced within fifteen years past a beautiful succession of groves, in which the wide variety of foreign and native trees alluded to in the foregoing list, are now thriving with all the luxuriance of a forest "to the manor born." Mr. FAY'S figures show this growth more exactly than any description would have done, and, although struck by the size and evident thriftiness of the trees themselves, we confess we scarcely supposed they could have reached their present measurements—varying, as will be seen above, from *eight to fifteen inches diameter of trunk.* Mr. FAY'S place affords the most extensive example of the kind, with which the writer is acquainted in this country. EDS. COUNTRY GENTLEMAN.

[For the Country Gentleman and Cultivator.]

PEACH TREE BORER—Egeria exitiosa.

Tansey planted around peach trees to keep off the borer (Egeria) is an error which, twenty years ago, I perpetrated, and to my sorrow, for it is nearly as difficult to eradicate as elder, and has no effect whatever. The best and easiest plan which I have tried is to first cut out the worm in May, (where it has been neglected in the fall;) then bank up the dirt around the trunk from nine inches to a foot high, compressing it with the hoe or spade. Then in the month of October or November, hoe the dirt away, and if they have had the courage to deposit any eggs, they are easily come at, but they seldom or ever attempt it. The rationale of this is that the insect does not like hard bark to deposit its eggs in.

Mt. Carmel, O. T. V. P.

[For the Country Gentleman and Cultivator.]

A Good Substitute for Coffee.

THE GARBANZO—*Cicer arietinum.*—I have grown the past season, a quantity of the above species of plant, of which I first obtained the seed of Judge A. N. Morin of Quebec, Lower Canada, he recommending it as a good substitute for coffee.

The plant attains the height of about 18 inches, and branches very much. The seed pods are very numerous, being thickly set throughout the plant, and is altogether quite an ornament to the garden. The seed somewhat resembles the "Java" coffee, and when prepared the same as the latter, it is considerd by many nearly equal in its quality. We have given it a fair trial, and deem it a rich, pleasant and healthful beverage—superior to any of the other "substitues for coffee."

It being very productive, it will require but a small space of ground to produce enough to last a common family through the year; and in these "*hard times*" I should deem it good economy to grow enough for our own use. It should be planted in drills two feet apart, and one seed, six inches apart, in the drill. L. NORRIS. *Windsor, Ohio, Nov.* 1862.

PEAR-TREE BLIGHT.

J. HARRIS, editor of the Genesee Farmer, who is one of the most sound and scientific of our agricultural writers, gave his views at the late meeting of the Fruit-Growers' Society at Rochester, in favor of the conclusion to which he had arrived, that the pear-tree blight is caused by a fungus at the root. The subject was very briefly alluded to in our report of the proceedings at the time. Some facts have since appeared in the Genesee Farmer. Although we regard the proof as incomplete, yet on a subject of such deep interest to fruit raisers, every suggestion of the kind is well worthy of attention; and possibly much more truth may be found eventually on the side of this opinion than at first sight would appear probable. The Genesee Farmer makes the following statement:—

The facts are these: We have a pear orchard of some seven hundred trees, principally dwarfs. Several of them have been planted ten years. They succeeded finely and bore good crops. In the summer of 1860, nearly *one hundred of these trees blighted.* Their places were refilled with new trees the same autumn. In 1861, the blight carried off eighty to ninety more trees, and the vacancies were refilled as before. This year forty or fifty more trees are blighted.

In the adjoining orchards of H. E. HOOKER and JOSEPH HALL, the blight has proved almost equally destructive. About twelve years ago, all these places were occupied with nursery trees, belonging to the firm of BISSELL & HOOKER. The trees were removed, and the land sold for private residences.

On digging around the roots of the blighted trees, in all three of these orchards, we have found in every case the soil filled with the old roots of the former nursery trees, and *these roots are covered with a fungus or mould.* The soil is literally alive with them. A careful examination, too, showed that the same fungus was attached to the roots of the pear trees. We have found it not only on the larger roots that were partially decayed, but also on the spongioles at the end of the fine delicate roots, that looked fresh and healthy.

Mr. WESTCOTT of this city, who has a nice pear orchard of dwarf trees, has also suffered from the blight; and on examing the roots of his trees, we found the same fungus attached to the roots. The land was formerly occupied with peach trees.

C. W. SEELYE also states that his pear trees planted on ground previously occupied with nursery stock, have suffered much from the blight, while his trees on new land are healthy.

[Since the above was written we have examined these trees, and found the fungus on the old decaying roots in the soil.]

These are the facts:

Our idea is that the fungus growing on the old decaying roots in the soil, is taken up into the circulation of the sap by the roots of the pear tree, and that, during the warm weather in summer, it grows with great rapidity, decomposes the sap and causes the death of the branches, and finally of the tree itself.

We commend these statements, and the opinion deduced from them, to the careful attention of fruit raisers, in connection with close microscopical observation. The remaining question is this—if the fungus is *always* found on the roots of the blighted trees, and never on healthy ones, is it the *cause* or the *effect* of the disease?

Diseased and decaying organized matter, very commonly, almost universally, produces the growth of fungus in some of its many species. But some parasitic fungi also attack living rapidly growing plants. A familiar instance is the *rust in wheat*—which close observations with powerful microscopes show to be a distinct, regularly formed plant,—which begins to grow from the *inside* of the wheat plant, and when the weather favors the rust, increases rapidly and bursts the epidermis, and then scatters its dust in every direction. The microscope shows that the seeds of these little plants are so small, that they are readily carried all through the interior of the wheat plant by means of the sap vessels; and it is probable that unless circumstances favor their growth, they may remain without germination, or if they germinate, may grow but little. There is no doubt that innumerable seed of different kinds of minute fungi exist almost every where, and produce "mould," mildew, blight, &c., as causes favor their growth. The curl in the peach leaf appears to commence inside the leaf in the same way; and the leaves of the pear which have been affected with the *leaf* blight, show by microscopic examination a minute fungus of a specific form inside the pulp.

The question occurs—If the pear blight is caused by a fungus, is it developed first on the outside of the root,—or are the minute plants mentioned in the preceding extract, such as have burst from the interior? If the theory is correct, further examination and experiment may lead to a remedy.

HALE'S EARLY PEACH.

This new variety, which has already excited a good deal of interest on account of its extreme earliness, will, we trust, have its character in this respect more fully proved another year. F. R. Elliott of Cleveland, Ohio, where it became first known, stated before the American Pomological Society at Boston, that it was a week earlier than the Early Tillotson, and as large as the Serrate Early York. A correspondent of the Gardener's Monthly, in a late number of that paper, states that he has fruited it two years under very unfavorable circumstances, that it is a white fleshed peach of good size, equal to any peach in cultivation in quality, and from ten days to two weeks earlier than Serrate Early York.

The Tillotson and Serrate Early York usually ripen at the same period, but the Tillotson is somewhat variable, and is sometimes earlier and sometimes later. Various influences will often modify by several days the first single reports of the time of ripening new fruits—witness the contradictory statements of maturity of the Delaware, Diana, Concord, and other grapes; but on the other hand, an old peach tree usually matures its fruit sooner than a young one, and we cannot therefore but strongly hope that Hale's Early peach may give us fine ripe dishes of this fruit before the time that we have hitherto enjoyed this luxury.

[For the Country Gentleman and Cultivator.]

DISSOLVING BONES.

A correspondent of the *N. E. Farmer* asks—"What is the best method of preparing bones, say to commence during the present autumn or coming winter, in order to have them thoroughly dissolved and most available for next year's crops?" In reply the editor says, "We have a lot of bones packed in ashes about four months ago, that are now so soft as to be easily crushed by the hand. We know of no better way to accomplish the end desired than this. They should be kept in a warm place in the winter, such as the cellar. The process is cheap, easy and effective."

We have experimented somewhat in this way with bones, and found the greater share of them to dissolve readily. If very firm they need breaking or boiling in lye, the latter process however would considerably reduce their value as a fertilizer. B.

FEEDING RACKS FOR HORSES.

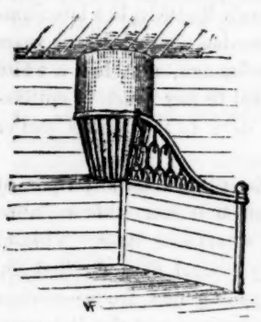
MESSRS. EDITORS—What is the best form of hay-rack for horses? There are two kinds in general use. One consists of slats or rungs inclined against the side of the barn; the other is a deep manger, reaching from the horse's breast to the floor. Both of these, it seems to me, are liable to serious objections. They give the horse the opportunity of *selecting* his hay from the ration assigned him, and according he takes a bite here and a bite there, poking the rest about with his nose, and at the same time continually breathing upon it, so that in a few hours the good hay is all eaten out, and what remains, being of a poorer quality, is rendered still poorer and unpalatable, and consequently worthless, by the horse's breath.

There is another kind of hay-rack which is free from these objections, and I think worthy of adoption. It consists of a four sided box shaped like an inverted pyramid, or like the hopper of a grist mill, though with steeper sides. On one side of this box or hopper, and near the lower end, is a slit about 6 inches wide and a foot long, into which the horse thrusts his nose when eating. The advantages of this arrangement are several. The horse is obliged to eat the hay which is at the bottom of the hopper—he cannot pick out the good and leave the bad, nor poke it about with his nose. He must eat what is next to him, and within a few inches of his eating hole. The hay above being inclosed in a box, is kept clean and pure, unpolluted by his breath, and ready for poney when he shall have eaten his way to it, through what lies under it.

I think with this kind of hay-rack, less hay will be wasted than with either of the others in general use.

What is the objection to this arrangement, and what is the best hay-rack for horses? J. H. P. *Franklin, N. Y.*

Our correspondent has correctly pointed out the objections to a deep manger. The same objection, in part, applies to the common rack placed in an inclined position over the horses' heads. We have occasionally met with the contrivance he describes, and know of no objection to it. Another mode, and somewhat similar to it in its working, is the semi-cylindrical and vertical box, with a nearly vertical rack at the bottom. This was figured and described in the Illustrated Annual Register for 1860, on p. 285. We give the cut here, merely adding that the box when neatly constructed is covered with sheet iron, and the rack is also made of iron bars. [The division between the stalls, also represented, has a cast iron rail and frame, attached to a strong cast-iron post, with plank set in below.]



[For the Country Gentleman and Cultivator.]

How to Protect Young Trees from Rabbits.

MESSRS. L. TUCKER & SON—I have noticed several receipts in the Co. GENT. for preventing rabbits from barking fruit trees. I will tell you what has proved effectual with me. Some two years ago the rabbits commenced barking my young apple trees, and also my neighbors' trees. I happened in Waukegon about the time, and as I did not know what to do to prevent them, I applied to Mr. ROBERT DOUGLAS, the extensive nurseryman, for a remedy, and he told me to mix equal quantities of lard and soot, and rub the trunks of the trees; but on consultation with a neighbor, who advised lard and sulphur, I concluded to mix all three together; so I mixed equal quantities of lard, sulphur, and soot, and applied it, and it proved effectual. On the trees that were partly barked, it stopped them from injuring any more, and they have completely recovered, and healed over. The mixture dried on to the trees, and has protected them since.

The same winter my neighbor had a young orchard of 60 trees completely destroyed, and last winter another of my neighbors had about thirty trees destroyed by them, although he rubbed them with lard and soot; the rabbits eat grease, soot, bark, and all. While they run round in my orchard, and eat all the twigs they could reach, and barked one tree that was not coated with the above mixture, they *never touched a tree that had been rubbed within two years with the lard, sulphur, and soot*, because the remains of it were still there. I think it an effectual protection against rabbits. Try it.

McHenry Co., Ill. ROBERT ANDREWS.

[For the Country Gentleman and Cultivator.]

Economical Manuring for Spring Grain.

Nature is always abundant in her suggestions, offering continually, means and motives of improvement, if we care to examine and estimate her bounties as they deserve. Whoever may show their regard for her works in leering or or scoffing tones or terms, I shall never therefore be found with them. For as a great poet and competent judge says of himself—

> "A devotee in nature's good old college.
> That's where I picked up my little knowledge;"

so say I. And if I mistake not, more natural and productive methods of manuring will, even during the present generation, take the place of such absurd antiquities as burying, gorging, starving, &c. Nay, even now, surface manuring is rapidly superceding the death (loss) and burial practice in the application of manure.

My farm being but about two miles from as rich and beautiful a prairie country as any in the whole west, (as I have personally ascertained,) and the openings, or partially timbered lands, adjacent and surrounding this district being equally fertile and more beautiful, because more various and attractive in natural products; with such a diversity of soils and modes of farming resulting, affords good facilities for observation, from which comparisons, computations and conclusions may be abundantly, if not correctly derived; and, as I was about to say, a suggestion on the subject of manuring was presented to my mind, as I drove across the prairie a few days ago, which I will now offer for consideration.

Our large wheat crop was, from the coolness of the season, so late in ripening, that when at length it was ripe the labor at command was entirely inadequate to the task of harvesting it before it was too ripe, dead ripe, or in the straw literally dead. The natural result of harvesting a large proportion of the crop in this "dead ripe" condition, was the shedding or shelling of a good deal of wheat, more than usual on the ground, where of course it remained till after the harvest was completed, which in most instances on the prairies, was quite late in September. The wheat thus lying on the ground was beat out principally in cutting, and consequently was somewhat regularly spread over the surface, whence it must of course be turned under when the ground came to be plowed.

Notwithstanding the bulk of them are behind, and this time many of them against their wishes, a few of our more driving cultivators plowed a few days more or less about the middle of September, the rain soon arresting much further progress for several weeks. On the ground then plowed there is now growing, *in the fall*, an excellent stand of *spring wheat*—Fife, Club, China Tea, and other varieties. This will be all killed down, of course, entirely and completely; more so, if possible, than our winter wheat was two years ago. In some instances oats that were plowed in, from similar causes have made a large growth and look well; but they also must share the same fate when their juices are subjected to the killing alternations of freezing and melting, and consequent decay.

The suggestion or inquiry arising from considering these

facts, is this: Why may not these crops of spring grain, after they have been disorganized and decayed by those severe alternations of fall weather which spring crops proper cannot withstand or survive—why when killed and half rotted, and in this state remaining on the surface, may not the remains of the fall grown spring wheat and oats *serve the purpose of manure* for the crop which will be sown on the *same* ground in the spring. In brief, why may not wheat and oats be sown on stubble ground, and plowed in at the early fall plowing for manuring spring crops?

Supposing the remains of the fall growth of spring grain can be sufficiently decomposed for the seasonable crop to organize in its spring growth, it appears to me that nothing can be more specially adapted to feed and build up a growing crop of wheat or oats than the identical substances, for the most part, of decayed growth of the same class and variety of plants—wheat from wheat, and oats from oats.

The ground is left as it was laid, in furrows ready for harrowing, when we will suppose two to three bushels of wheat, or three to four of oats, are sown and plowed in about the middle of September. By the 20th of March or thereabouts, the soil is ready for seeding; not having been harrowed, the half rotted and easily divisible full growth will now be harrowed in or mixed *lightly*, or *near the surface*, by some process necessary to the covering of the freshly sown seed. Here it must be fully decomposed and reduced to its smallest component particles in three or four weeks. This seems a certain result, both from decay being already half affected, and because when the favorable proportion of heat and moisture usual in spring, come to act in continuance of the process, it cannot be stayed till the work of disorganization be complete. I infer then, that spring grain sown and plowed in in early autumn, will be sufficiently decayed to feed and build up the *same* or a similar kind of grain sown on the *same* soil in its proper or congenial season—the spring. I do not dogmatize here, but this is my opinion.

If it be thought that some sorts of spring wheat may survive the winter, the same variety that is to succeed it can of course be used, and mixing will be no damage. Or if oats be preferred for reasons of economy, there appears to be no reason why they may not be employed, their composition throughout identical, being similar to that of spring wheat. Oats as a preparatory dressing for oats, would naturally be used; for wheat they might be occasionally. But wheat would supply the most suitable peculiar elements for the structure of similar wheat, beyond doubt. In the appication of this method of manuring, many variations from a given routine are practicable.

In regard to any mechanical objections to this plan, I do not say positively. But as the *top* growth of the *full grown* crop is already dead, and easily broken up by the spring harrowings, I perceive no reason why the roots also, being long since dead, and much decayed and easily reduced to fragments, should offer any serious obstruction to the complete working of the surface soil necessary in spring seeding. The furrows are *not* leveled or broken as when wheat is put in on *corn* stubble without plowing, and I am inclined to believe the surface is *not* so much beaten down and hardened by the fall rains, when protected by a young growth, as when not sheltered at all. The furrows will therefore supply sufficient mold, and it is best to harrow before sowing, one way, and crosswise the next time; in level culture the mechanical objections are few if any. Here I must leave the discussion, but ask for the subject its due consideration. J. W. Clarke.

[For the Country Gentleman and Cultivator.]

APPLE TREE BORER---Sapperda bivitatus

To keep off the sapperda, or borer, is simply to head the trees low enough to shade the trunk. There is no use of fooling with wires to reach the individual, for his hole is generally so tortuous as to rarely be able to reach him; moreover, they never retire to the woody part of the tree until the damage is done. Soft soap is very good for the body of the tree, but the first rain washes it off, and never reaches the borer. Since I have adopted this plan the borer has entirely disappeared from my orchard. In vol. 9, page 254, I gave my views on the subject of the borer at some length, and I have had no reason to change them since. T. V. P. *Mt. Carmel, O.*

[For the Country Gentleman and Cultivator.]

Manufacture of Gunpowder and Saltpetre.

The Empire Mills of Smith & Rand, on the Walkill river, Ulster Co., New York, are now running night and day, manufacturing cannon powder. They have just erected at a heavy cost, an extensive building and machinery for the manufacture of saltpetre. As saltpetre is the most expensive part of the composition used in the manufacture of gunpowder, it will be a great saving to them if they succeed in manufacturing their own. It will also be of great importance to the government if we should get into difficulty with England, for we are now nearly dependant on Great Britain for the saltpetere used in the manufacture of gunpowder. The manufacture of saltpetre on an extensive scale, I believe is something new, and is a secret, and Smith and Rand have the patent. They employ a chemist, and potash constitutes one of the articles used in the manufacture.

Gunpowder, as everybody knows, is made from saltpetre, charcoal and sulphur. The charcoal used is burned from willow, soft maple and alder wood, the bark being peeled off previous to burning it into charcoal. The charcoal is burned in large ovens, and ground in a cylinder filled with copper balls which pulverizes it as fine as flour. It is then mixed with saltpetre and sulphur, and put into large pans of cast iron, and is ground and mixed by large cast iron wheels revolving around in the pans, the wheels weighing from four to five tons each. The composition is kept wet while the wheels are running on it. If the composition becomes dry from carlessness on the part of the man in charge of the mill, an explosion takes place, which generally results in killing the man or burning him very badly. From those wheel mills the composition is taken and pressed in cakes half an inch thick, by powerful hydraulic presses. The cakes are then put through a cracker and broken into grains; the grains are put through sieves and separated the fine from the coarse, when it is glazed and put into a building, heated to 90°, and thoroughly dried—the pressing and drying being the most essential part in the manufacture of powder.

It is then put in kegs of 25 lbs. each, and shipped to all parts of the world. The kegs are varnished, which renders them water proof. Since the rebellion broke out, they have taken large contracts from the government for cannon powder. They use all the latest improved machinery in their mills, and have invented and put into use in their mills machines that considerably lessen the labor of the hands employed, which enables them to manufacture double the quantity of powder with the same force.

Smith & Rand are bits of farmers by the way. They have a farm of about 200 acres adjoining their mills, which, if they continue to apply the refuse saltpetre, and the ashes made in the burning of the charcoal, will soon be in a high state of cultivation.

I have extended this article longer than intended, but I think the readers of your valuable paper may be interested a little to know something of the process of manufacturing an article that has been for some time used in this country to such an enormous extent and has sent thousands of noble souls to a soldier's grave.

Rosendale, N. Y., Nov. 17, 1862. S. P. KEATOR.

There is no day so delightful as the day that is useful; and no week is likely to pass so serenely as the week whose first day is doubly hallowed by devotion and beneficence.

A Scientific View of "the Progression of Primaries."

Eds. Co. Gent.—Professor J. J. Mapes is vigorously advocating his doctrine of the Progression of the Elements of plants and animals; and, as I see from a late number of your paper, he claims it as an important item in the late developments of Agricultural Science. As I differ totally from Mr. Mapes in regard to the value of this doctrine, allow me to set forth in detail the reasons for disallowing it.

In the Nov. No. of the Working Farmer, it is asserted, page 242, that

"this globe was once a mass of rock, and without either soils or inhabitants of any kind; that the same constituents existed then as now: nothing has been added and nothing taken away; but in the mean time matter has been configured into men, animals and plants, and the God of nature has thus endowed matter with new functions not before developed, and this change is called PROGRESSION, of which chemistry can take no note beyond the mere recognition of groups of proximates, the process of the creation of which is beyond the powers of the laboratory to define, and the comparative values of which can only be known by observation apart from analyses."

The doctrine of Chemistry acceded to by all who, to my knowledge, have expressed an opinion, Prof. Mapes alone excepted, is quite opposed to the above. It is as follows, viz: At the creation, matter was endowed potentially with all the qualities and functions that can be developed in it. The powers of matter are not modified by its entering into an organism, either vegetable or animal, but the organism exhibits qualities that are strange to mineral substances, because it is a different combination of different elements. Again, when an animal or vegetable is destroyed by fire or decay, and is resolved into carbonic acid, water, ammonia, phosphates, sulphates and chlorides of potash, soda, lime, magnesia and iron, these substances thus produced have properties identical with those found in the same combinations originating in whatever manner, provided they are in the same *physical* condition.

It is true that "feldspar rock, containing 17 per cent of potash, is not as valuable as a manure as wood-ashes containing the same amount of potash;" but this is due firstly to the fact that in the wood ashes exist all the fixed ingredients of vegetation, while in feldspar there are of these only potash (soda) and silica; and secondly, the potash of the ashes is readily soluble and therefore available to growing plants as carbonate, &c., while in feldspar it is united in an insoluble and difficultly decomposable combination with silica and alumina. The chemist believes that if by processes with which he is familiar, the potash of the feldspar be extricated from its combination with silica and alumina, and converted into carbonate, it will and must be as valuable and grateful a nutriment to plants as that potash derived immediately from the blood of the most progressed man of the century. There is not to my knowledge a single fact on record which invalidates this statement of mine—much less one which in any way sustains that of Prof. Mapes.

It is true that

"if the ultimate analysis of wheat should chemically accord in composition with the analysis of a rock or soil, it does not prove that the rock or soil would assuage hunger like the wheat, or have a similar value as food;"

but not for the reason that

"the constituents of the wheat are more progressed, and therefore may be assimilated by men, animals or plants, while the same constituents taken from the rock would, if eaten, be voided as excretia, without assimilation;"

but because the constituents of the wheat exist in soluble and assimilable combinations, while those of the rock are unattackable by the digestive organs of animals, and insoluble in water, which is the medium whereby plants receive food from the soil.

Mr. Mapes asserts that

"The decay of lichens, mosses, and the lower order of plants does not at once furnish food for most advanced plants, but by re-assimilation in plant-life, they are rendered capable of feeding higher classes of plants, and eventually those on which animals may be fed."

This assertion has no proof. The fact is that the decay of the lower orders of plants does furnish *at once* food for the highest orders of plants, and this as good as they can anywhere procure. Mosses, lichens, and the inferior plants, do not indeed furnish all that higher plants require, or in the proportion they require, so that the results of the decay of 100 lbs. of moss will not supply material to grow 100 lbs. of wheat; but all the lime, carbonic acid, potash, phosphoric acid, &c., yielded by the decay of mosses or lichens will answer the needs of growing wheat as well as an equal quantity of these ingredients respectively, derived from any source Mr. Mapes may name.

Several years ago Prof. Mapes was reported through the N. Y. Tribune to have said at a meeting of the Farmers' Club as follows:

"All mineral substances, whether carbonate of lime, phosphate of lime, sulphate of lime, potash, soda, salt, or other constituents of plants, are valuable in proportion to the source from whence they are derived. The higher the organization of animal or plant, the more valuable the mineral obtained. The mineral phosphatic rock, which gives by analysis the same results as calcined bones, is worthless for manure, and a quantity of carbonate of lime from the pure limestone given to a field equal to two per cent. of the soil would render it barren, while forty per cent. of the same mineral exactly, according to analysis, is extremely fertile. The cause is, one has never undergone and change since its deposit, and the other has passed through a long course of organized life."

It happens that we can adduce several experiments conducted in such a way as to prove incontrovertibly that the above is totally false.

On referring to the Journal of the Royal Ag. Soc. of England, vol. 6, pp. 329–333, the reader will find an article by Dr. Daubeny, "*On the use of Spanish Phosphorite as a Manure.*" It is well known that Dr. Daubeny and Capt. Widrington visited the Phosphorite locality of Estremadura in 1843, for the purpose of ascertaining if a substitute for bones might be procured thence. They brought a quantity of the mineral to England, and in order to test its value, Dr. Daubeny made the following trials with turnips on a plot of land in the Botanic Garden at Oxford, which had been "cropped for ten or eleven successive years without the application of any kind of manure."

Field of turnips per acre, in lbs.

	Roots. lbs.	Tops. lbs.
Unmanured	14,298	30,591
Bone shavings, 10 cwt. per acre	19,239	35,210
Spanish phosphorite, 12 cwt.	28,639	42,016
Spanish phosphorite with sulphuric acid, 12 cwt.	30,869	34,476
Bones with sulphuric acid, 11 cwt.	31,893	44,421
Bones finely powdered, 12 cwt.	36,185	45,446

Of these results, Dr. Daubeny remarks, "the Spanish phosphorite, especially when its action was quickened by the addition of sulphuric acid, proved *nearly as efficacious* as bones themselves, unless indeed when the latter were very finely powdered." These facts scarcely sustain Prof. Mapes' assertion, that "the mineral phosphatic rock which gives by analysis the same results as calcined bones, is worthless as a manure." On the contrary, we find that the Spanish phosphatic rock which occurs in granite, and has not been "progressing" for a good many thousand years, is *nearly as efficacious* as bones themselves.

These results of Dr. Daubeny are not however entirely satisfactory, for the reason that the phosphorite is compared with unburned bones, the animal matters of which could hardly fail to exert much influence on the crop. Fortunately for our argument, Sir H. Verney also made a series of experiments in which the effects of phosphorite were compared with those of burned bones. These trials are reported in the same vol. of the Journal of the Roy. Ag. Soc. pp. 331–333. The field was a "heavy sandy loam resting on a clayey subsoil." The plots which were wheat stubble, were prepared for a green crop in the spring of 1844; the various fertilizers were applied, and the field planted with mangel wurtzel. The drought of 1844 was so severe that the crop came up poorly, and the result was destitute of any value. The next summer, after digging the plots, barley was sown, and the season being good the results were as follows:

	Manure per Acre, Tons.	cwt.	qr.	Produce. qr.	bu.	pks.
Unburned bones	1	7	0	5	0	0
Burned bones	0	18	0	5	3	2
Superphosphate of Lime	1	5	3	5	6	3
Spanish phosphorite	0	18	0	5	3	2
Spanish Phosphorite & Sulphuric acid	0	18	0	6	3	2
Nothing	0	0	0	3	6	3

Here we see that 18 cwt. of phosphate rock produced a

result equal to that given by the same amount of burned bones, and that 18 cwt. of a superphosphate made of phosphorite gave a higher yield than 1 ton 5 cwt. of a superphosphate made in all probability from bones.

The *facts* adduced by Prof. Mapes to maintain the theory of progression are all capable of explanation on received principles, and when fully understood do not indicate any such progression as he claims, but quite the reverse. Most of his statements, however, like that regarding the relative fertilizing value of phosphatic rock and bones, are not facts, but inventions or assumptions.

When the Professor asserts that

"chemistry, as at present understood, can take no cognizance of FUNCTION or CONDITION,"

he simply exhibits his ignorance of "chemistry as at present understood." Chemistry can and does take cognizance of *condition*. It teaches that phosphate of lime in the shape of Hurdstown phosphorite, or as crystalized apatite, is not available to plants with that rapidity which is needful in an active fertilizer, because of its density and consequent difficulty of solution. Chemistry knows how to produce apatite artificially, shows how to convert the soft, porous, and therefore soluble bone earth into the dense and crystalized apatite, and teaches that this artificial apatite, though the bone earth from which it is made may have been progressing in Prof. Mapes' sense from the dawn of life down to date, becomes equally inefficient with the native apatite when it is crystalized in the same dense condition. Chemistry also teaches that the dense apatite, or the denser Hurdstown phosphorite, by solution in an acid, and by reprecipitation is made as soluble, and in all respects as useful, considered as food for plants and animals, as any other phosphate, whatever be its source or origin.

In the course of his argument Prof. Mapes asserts "that some of the metals occasionally take on *conditions* which the chemist cannot detect," and asks:

"What chemist can decide between two pieces of pure wrought iron, by analysis, which will make good horse-shoe nails, and which will not? Every blacksmith knows that such differences exist."

Now it is certain that the chemist cannot detect any difference by analysis in two pieces of *pure* iron. It is equally certain that two pieces of pure wrought iron will both make good horseshoe nails, and no blacksmith can show the contrary. It is, however, the fact that two pieces of iron, which are *apparently* alike in purity, may be different in malleability and toughness, and when this is the case the chemist can tell the difference.

Here is another "fact" which furnishes an analogy for "progression:"

"Occasionally a blacksmith finds that a bar of iron will not work kindly on the anvil, and lays it aside in consequence; this same piece of iron at another time seems to have greater ductility, malleability, etc., and may be used to advantage; can these different conditions of the same piece of iron be ascertained by analysis?"

To this the only answer needed, is that analysis is certainly quite incompetent to ascertain conditions which merely *seem* to be, and are not!

Mr. Mapes further asserts that

"even among the ordinary remedies prescribed by physicians, many may be found which are inert, simply because they are taken from unprogressed sources, and cannot be assimilated by the human organism. We were answered a few days since, by a young chemist, that it was only in cases where the materials were in an insoluble state, that they proved medicinally inert, etc.; this is not true. Epsom salts are always soluble, and yet that made from treating magnesia with sulphuric acid, the former being taken from two different localities and of equal purity, as decided by analysis, differ materially in their effects on the human stomach; and it is equally true of hundreds of other medical preparations. The prot-oxyd of iron taken from the blood of a man, has powers not to be found in the same material, chemically considered, from lower organic sources. Every animal, man included, assimilates so much of his food as is progressed to his status, and rejects, as excretia, that which is not so progressed. The same is equally true of plants, the quantity presented for assimilation not being in excess of requirement."

The readers of the COUNTRY GENTLEMAN may rest assured that the different effects of Epsom salts taken into different stomachs or into the same stomach at different times, depend upon something else than the *origin* of the purgative. If the salts do not "progress," it is not because they have not been progressed before, but because of a *condition* of the patient.

As to "the powers of pro-toxyd of iron taken from the blood of a man," it is worth while to know that there is not a jot or tittle of proof that there is any pro-toxyd of iron in blood at all.

If chemistry is undecided as to the form in which iron exists in the blood, what may Prof. Mapes be presumed to know of the powers of its pro-toxyd when taken from that fluid?

I have elsewhere called this Theory of Progression a "vagary," and a "contemptible piece of quackery." If any one thinks such a verdict too severe, I should be most thankful for a single argument or reason that would warrant a change of opinion. SAMUEL W. JOHNSON.

Sheffield Scientific School, Yale College, Nov. 20, 1863.

[For the Country Gentleman and Cultivator.]

LONG-WOOLED SHEEP.

MESSRS. EDITORS—"Hawk-Eye" wishes to know whether "a white face and nose is an essential mark of purity of blood in Leicester or Cotswold sheep." I answer it is not—on the contrary, a *strictly* white face and nose would create doubts at least of purity of blood, especially in the Leicester. They are both favorite breeds with me. I have heretofore bred the improved Cotswolds, and "improved Kentucky sheep," exclusively, but I have watched other breeds closely for several years, and have come to the conclusion that the Leicester ranks next, if it is not equal to the Cotswold in point of profit to the farmer—which I take it is the great object aimed at by nearly every body.

I attended the Provincial Fair in Canada West, held at Toronto this season, for the purpose of adding a few choice animals to my flock of sheep, if I should be so fortunate as to find them. I need scarcely say to those familiar with Canadian exhibitions, that I experienced no difficulty in finding better than I had at home; nor do I consider that I do any discredit to my own flock when I make the admission. To say that the show of sheep was surpassingly fine, far excelling that of any of our State or United States fairs that I have ever attended, (and I have attended many,) would be but simple truth, and might not be considered much of a compliment by those who do not prize long wooled sheep as highly as I do—for this great show was confined almost entirely to Cotswolds and Leicesters—scarcely any South-Downs or fine wools were on exhibition. Long wools are the sheep of Canada, and bred with an apparent skill not common among our sheep breeders in the States.

For the benefit of "Hawk-Eye" I will say that in Canada, as elsewhere, I did not observe that "*white faces or noses* was any evidence of purity of blood" among the long wools. But he should understand, however, that the face must not be black, like the South-Downs, but a sort of speckled mouse color—better described as a color peculiar to those breeds, a little *darker* than a *white*.

The Cotswolds and Leicesters are now so nearly the same, that they should not have separate classes, but all exhibited as long wools. Almost the only distinguishing mark in many instances is a somewhat lighter face, and a small tuft of wool always present on the crown or forehead of the Cotswold, and always *absent* on the Leicester. Formerly there was an apparent wide difference in the chief characteristics of the two breeds, but later improvements, produced by judicious crossing of the two have made changes in each very like the other, and yet both greatly improved, giving us fine stately sheep, weighing at two years old in breeding condition, from two hundred and fifty to three hundred pounds, covered with immense fleeces of wool, and altogether in general appearance models of style and beauty. I. D. G. NELSON.

Elm Park, Indiana, Nov. 20, 1863.

P. S.—I omitted to mention in reply to "Hawk-Eye's" inquiry, that pure Leicesters and Cotswolds should never produce black lambs: but it is so easy to get a little tinge of other blood in your flock, that it may occasionally "crop out" several generations after. In South Downs it may occur more frequently for aught I know, as they are reputed to be of "African descent," or more properly speaking, perhaps, of black parentage. N.

[For the Country Gentleman and Cultivator.]

WINTERING BEES.

EDITORS COUNTRY GENTLEMAN—During the close of the past, and also the fore part of the current year, considerable correspondence appeared in the columns of your weekly, on that important branch of bee-keeping, to wit: "*The management of Bees during Winter.*" One of the most able of those correspondents, in the No. for Feb. 27 says: "Next fall I will endeavor to send you some good systems of out-door wintering, the best that can be adopted." This gentleman it seems, has not as yet gratified your bee-keeping readers with the information he claims to possess, and which they really stand in need of, if they do not discard such "systems" and adopt a more judicious method, that of in-door wintering.

I am aware that the worthy President of our "Bee-Keepers' Association," (Dr. Kirtland,) a gentleman uncommonly sensible, and of great attainments, also a practical bee-keeper, hinks that bees do as well or better out of doors in their thin wooden hives, protected from northern and eastern winds and hot suns. However, he would attempt to winter none other than strong colonies, which have large stores of honey and bee bread. With such a stock, having due care, he "looks upon bee-houses, bee-cellars, and the burying of bees, as at least superficial." Of this, when applied to a mild climate, there can be but one opinion, and even in cold climates it cannot be disputed that such colonies receiving such care, possess all the conditions to enable them to endure the most rigorous winter generally unharmed. On the other hand it cannot be denied that in cold climates, the consumption of honey by a colony of bees when wintered out of doors, is much greater than when otherwise cared for. This excessive demand of honey is occasioned by the excitement produced by the variableness of the raw atmosphere, whereby the bees are kept continually exercising to maintain an even temperature, and of course the more arduous the exercise, the more food they require.

Bees, when kept at a uniformly low temperature, remain nearly torpid, requiring but very little honey. Hence this state of stupor is the *desideratum*, and the chief end and aim in systematic bee wintering.

It should ever be borne in mind that the honey bee is *not* a native of northern climates—that it is counter to her original instincts to dwell therein, confined by stress of weather to its hive for months. The climate most congenial to the bee is one which combines great warmth, with sufficient humidity, producing the most abundant secretion of nectar drops from the millions of flowers that retain their freshness in such climes. How far north it can live, is not yet yet ascertained. In Sweden, it still affords a surplus of honey. In the United States, Texas is the best adapted to the bee and bee-keeping; for instance, in Western Texas *good* swarms yield from 100 to as high sometimes as 200 pounds, depending somewhat on like circumstances that influence the yield in colder regions. Bee-keepers should bear in mind that many of these circumstances are within their control, such as suitable hives, proper *protection during winter, and vigilant attention at all times.*

The farther we recede from this favorable locality into northern latitudes, the more strict and arduous is the attention required. Hence bees, while out of their native regions, require different domestic treatment—imitating in *effect* by artificial means, their natural climatic condition. To attain this, each hive must be secluded from the external atmosphere, which may be done in various ways. The most effectual way is to bury them with earth. Not, however, by depositing them "in *holes* in the ground," in any and every situation, but by *securing them from wet and damp.* A dark, dry cellar forms likewise good winter quarters. The hives should not be transfered to any dark repository until the weather is *cold;* and the removal should be done as quietly as possible. Moreover, jarring, moving, or in the least disturbing them when thus quartered, should be scrupulously avoided. Otherwise their need to fly and empty their abdomen will be augmented, and if they be disturbed very much they thereby digest the more, and the desire to evacuate is awakened, which might become intolerable, and death the result. This, [and the need of *water*, also,] is why protracted confinements, (the result of climate,) are so unnatural and mischievous to bees. Hence the immoderate consnmption of food while so confined, is not only a waste of honey, but actually endangers their lives. Hence the proper and only correction or safeguard, is to render their condition such that they will require a comparatively small quantity of food—making a very little suffice.

In conclusion, I would admonish brother bee-keepers in cold climates like this, that if their aim is to render that lucrative branch of industry successful in the highest degree, one or more of these three systems *must* be adopted.

Richford, N. Y., C. J. ROBINSON.

[For the Country Gentleman and Cultivator.]

A Word Concerning the Register, Curculio, &c.

MESSRS. EDITORS—I received the ninth number of the Annual Register of Rural Affairs last week, and can conscientiously recommend it to all lovers of rural and domestic reading. I deem Dr. FITCH'S entomological essay alone, worth more to any farmer or fruit grower, than five times the price of the book, provided they are not familiarly acquainted with the science. The insects illustrated are very accurate indeed, so much so that almost any one could identify the natural insects destructive to fruit trees and grain crops generally, by comparing them with the well executed cuts laid down in the Register of 1863. Dr. Fitch is a very plain and able spoken man, having done a very great deal of good in the State by placing his valuable essays before the public, through the COUNTRY GENTLEMAN, Agricultural Reports, &c.

The Doctor says in the Register, speaking of the curculio, that "the earnestly awaited first mark of the Curculio has not appeared on my young fruit trees this season;" and farther adds, "what has caused the curculio to thus vanish, I am unable to conjecture, nor do I yet know whether it has similarly disappeared over the country generally." I would state that they have not. These little pests have been much more numerous the present year in the central part of Duchess county, than I ever knew them before. I have been in the habit of practicing the "jarring process" for many years, in the meanwhile having found no other remedy so effectual; although I am of the opinion that dusting air slacked lime over the young fruit pretty plentifully, will have a tendency to prevent the curculio's ravishing attacks; and by sowing it, mixed with a small quantity of fine salt, beneath the trees, destroys a great number of those young insects of various species, which lie very near the surface of the ground. This composition being a very strong fertilizer, it renovates rather than destroys, by keeping the trees in a healthy state. Yet this may be all my own supposition or imagination. I do not give it as a real or effectual remedy, neither do I recommend it to others, but can safely say that I have practiced it with some very good results. And to give you an illustration of this fact, I am compelled to say that we have not failed in raising a good crop of plums, more or less in number, owing to seasons, for ten years, during which time I have experimented with various remedies recommended in agricultural papers and through other sources, but find none so effectual as the process above mentioned, in connection with spreading sheets under the trees and jarring the curculio off upon them, and putting an end to their existence by a pinch between the thumb and forefinger, which is the quickest and most convenient way of exterminating them. This latter process proves a perfect success when all others fail. In this way I destroyed one thousand five hundred and one of these weevils the past summer, all of which I caught from a few plum trees, with a very few exceptions—finding less upon the trees that had lime sowed over the fruit, than those which had been left for nature to protect. Notwithstanding, every tree was treated just a like so far as jarring was concerned, and all the young fruit picked up and either burned or fed to the swine, the former being most commonly resorted to. But it seems to me if this vast number of insects had been let alone, without showing any sort of warfare towards them whatever, there could not possibly have been a plum remaining upon the trees

to ripen; but luckily we raised a splendid crop of very choice plums—twenty-six varieties of which I exhibited at the County Fair, that more than doubled in numberthe list of any other competitor. C. R. C. MASTEN.

Prospect Hill, Duchess Co., Nov. 16, 1862.

BENEFITS OF UNDERDRAINING.

Hon. A. B. CONGER, chairman of the Meetings held during the recent State Fair at Rochester for Agricultural Discussions, communicates for the COUNTRY GENTLEMAN the following summary of the conclusions arrived at, at one of these meetings, on the important subject of underdraining:—

1. The principal benefit to be secured to the farmer, by underdraining, lies in the more *thorough tillage* he is able to give his *arable* land; yet instances are not wanting, where *pasture lands* are very profitably improved from what may be denominated the *primary* or simple method of draining.

2. In the discussion of this subject, soils are properly divided into those which produce, to a greater or less extent, *aquatic*, and those which bear the *cultivated grasses*; the former being nearly destitute of nitrogen, or the flesh-forming principle.

3. As the supply of nitrogen for plants is mostly derived from the atmosphere, soils not possessing the natural or artificial means of drainage for the surface water, or that welling up from stratified subsoils, are unable to allow the atmospheric air to circulate in them, and cannot absorb any portion of its nitrogen, and are generally regarded as barren or waste land.

4. The average annual fall of water in the State of New York, in the form of rain and snow, is within a fraction of three (3) feet, of which only one twenty-fourth (1.24) is appropriated by plants; seven-twelfths (7.12) pass off by evaporation, and three-eighths (3.8) are carried away by water-courses, either open or moving beneath the earth's surface.

5. Where these water courses are deficient in number, imperfect in flow, or obstructed in their outlet, the first essay of the drainer is to remedy these defects; and where the adjacent land is porous in its character, as in the case where sandy particles predominate, the simple ditch, judiciously located, is sufficient to provide for the escape of all surplus water.

6. Where, in addition to the annual supply from the skies, the soil is saturated with water boiling up from the stratified subsoil, or underlying or adjacent rocks, it is then expedient by *boring*, to conduct the excess of this supply to the main ditch directly, or by lateral drains leading into it.

All these methods may be classed under the primary method of drainage.

7. In soils deficient in, or wholly deprived of, sandy or porous constituents, the escape of the twenty-three twenty-fourths (23.24) of the rain and snow fall is retarded, the average temperature of the soil is lowered by six and a half degrees (6½°) of Fahrenheit's scale, equal to seven degrees (7°) of higher latitude, and the water forced up from the fissures of adjacent stratifications (if any there be,) make the receipts of a more thorough system of drainage, which may be styled the secondary or complex method.

8. In proportion to the density and tenacity of the soil, ditches must be dug at intervals varying from twenty-five (25) to fifty (50) feet apart; and in order that the plowing and laying down of the land may be effective, the ditches must be covered; and this has inaugurated the system of tile draining, at an expense of from twenty ($20) to forty ($40) dollars per acre, rendering land, previously of but little value, capable of the highest production.

9. This, however, can never be fully realized, unless the draining is followed by the deepest plowing, not only by the ordinary, but by the subsoil plow, and also by a system of high manuring, which shall supply not only nitrogenous manures, and those rich in the mineral food of plants, but also those which abound in carbonaceous material, and will insure a perfect æration of the soil, and prevent its subsidence to its original compact and impermeable condition.

Care, however, should be taken that none of these several materials should be supplied in excess; and economy requires that neither should be added to soils enjoying it naturally in sufficient amount and in a soluble form.

10. The draining should only be undertaken after a careful *survey* by a competent person; the drains should be accurately delineated upon a map for future reference; the tiles should be laid on an uniform grade, so as to avoid sags in which silt might accumulate; the outlets should be as few as possible and carefully guarded, and, in some cases, with traps, to prevent their stoppage on the entrance of vermin.

11. As illustrative of the vast importance of this subject to the farming interests of the State of New-York, it is believed that but a comparatively small portion of its arable land possesses a good natural drainage; a large proportion has this, but in an imperfect degree; and probably ——* per cent has none at all, but demands a thorough application of the methods of the secondary system of drainage.

[For the Country Gentleman and Cultivator.]

Ventilation of Stables.

While many farmers ventilate too largely, others do not ventilate enough, and some not at all. A moment's reflection will convince almost any one of the great importance of furnishing animals with a good supply of pure air. When we go into a stable, and the ammonia arising from the manure makes our eyes smart, or if the air appears at all impure, we may rest assured that there is a deficiency of pure air, and the health of animals will be seriously affected, if ventilation is not more perfect.

I frequently step into the stables of hotels, and in the morning the stench and impurity of the air is enough to sicken a healthy horse in one hour. It is no wonder at all that there are so many sick horses, where so large a number are confined within a small stable, where ventilation is very imperfect; but it is a great wonder that they do not die right out, from being confined in such impure apartments.

Impure air in stables always rises to the upper side of them. Therefore, if there be an opening over head, the foul air will escape, and pure air will take its place; whereas, if there are nothing but small cracks, or other apertures in the sides of the building, the air will become very foul in a short time. Let the cracks be well battened, and let the doors be fitted tight, and then cut a hole from three to four feet square in the floor over head; and if the building is not a spacious one, there should be a ventilator at the top of the roof. Stables should have windows, also, in the sides, or behind the horses, for admitting the light, and which may be thrown open when the weather is not freezing cold. When the manger or rack is formed against the outside of the stable it is a good arrangement to have a small dark window before each horse, which will slide open and shut easily, so that each horse may thrust his nose out when he desires, and inhale the fresh air.

Great caution should be exercised in ventilating stables, that the animals be not exposed to a current of cold air. Currents of cold air should never be allowed to enter a stable through large cracks in the floor, as horses will most assuredly contract cold when thus exposed. When the weather is not freezing cold, windows should be opened, and sometimes the doors also. S. E. TODD.

LOW FARMING IN GERMANY.

[The following letter on the common farming of Germany, is written for the COUNTRY GENTLEMAN by Mr. WILHELM VON LAER, Secretary General of the Provincial Agricultural Union, at Munster, Prussia. It will be read with much interest, and its statements, we need scarcely add, may be received with entire confidence. We are happy to be able to promise our readers during the coming year some farther letters from Mr. VON LAER, who will please accept our thanks for the two already received, the remaining one of which we shall publish at an early day. As Secretary General of the Provincial Agricultural Union of Westphalia and Lippe-Detmold, Mr. VON LAER edits the "*Landwirthschaftliche Zeitung*" published under the direction of that society at Munster. Some copies of this sheet were received by us several months ago through the attention of Messrs. E. H. REEVES & Co., 185 Water-st., New-York. It is in its 19th year—is issued in weekly numbers, of eight pages each about two-thirds the size of ours—and its subscription price, if we understand the terms correctly, is 30 *silver groschen*, or about 75 cents, a year. Its contents are of a practical character, and it can scarcely fail to accomplish much good among the farmers of Westphalia and the surrounding provinces. EDS. CO. GENT.]

EDITORS COUNTRY GENTLEMAN—American farmers are sometimes led to believe that in the old settled districts of Germany, agriculture has attained a high state of perfection, and that every foot of soil is highly cultivated and made to yield crops up to its full capacity. Travellers naturally are attracted by the bright side of things, and their reports frequently generalize. There are indeed on this eastern continent, many districts that have during the last 30 years made wonderful strides towards perfection, and on many single farms the practical management is a fair illustration of the progress of science. But the great bulk of our farmers are still backward, and the sum of agricultural produce in the country would yet be doubled, if farmers generally would set their brains to work as well as their bones. Let me give you a few illustrations of this assertion.

It is a common saying here, that money and manure never hold out long enough. Every farmer will tell you, that if he only could get manure enough he would show you how to raise crops; every farmer will be very saving and economical when he comes to hauling out and spreading his manure. I frequently have found a sort of superstitious faith in the effects of manure. At the same time, the vast majority of our farmers allow their manure to waste and deteriorate in a shocking manner, while in the barn-yard. If on a rainy day you pass a village, (dorf,) you will see the water from every roof run directly upon the dung-pile—no provision to carry it off. You will see the manure drowned in a pool of dark brown water, and the latter run off. If the farmer is a good husbandman he will cut a ditch, or have the water thrown out into the road-ditch. If he is careless, his yard will become a mud-hole. I could show you fifty villages in one day, where this state of things prevails in various parts of the country, north and south. This horrible practice forms the rule; good husbandry is still an exception. If we should go to 100 average farms, we should not find five among them who treat their barn-yard manure exactly right, by having a properly built and paved receptacle with tank, and protection from rain-water; 30 per cent. might have moderate arrangements, and about 65 per cent. would be in the most shiftless state. Still there are whole districts where a better state of things prevails, and many farms where the whole of the manure is kept covered by roofing, and properly treated. Our agricultural societies frequently offer premiums for improvement in barn-yard arrangements, but their premiums often cannot be distributed for want of an object. A small infusion of Yankee spirit into our farming population would work wonderful changes.

The best standard for a farmer's thrift is the appearance of his stock. Now we have splendid grazing districts in our river-bottoms, and there we find beautiful animals polished by good keeping, and we find rich and intelligent farmers. We also find excellent and well filled single stables scattered on the upland. But again, the majority of cows are poorly kept. Great improvement is going on in this branch; fine stock is being bought and imported continually, but more than one score of years will yet elapse before sound rules of husbandry will be generally observed.

Let me tell you how thousands of independent farmers here still keep their cattle. First, they keep 25 per cent. more than they have a sufficiency of feed for. Many small farmers yoke their cows, and make them do all their farm-work—plowing, harrowing, hauling, etc. I could even name whole townships in which not a single ox or horse is kept. Every man raises his own calves; good bulls are scarce, and nobody wants to pay for their use. Let me repeat again, that there are honorable exceptions to this practice, but the latter forms the rule. Go to a fair where perhaps 800 head of cattle are put up for sale, you will scarcely find 100 good ones, unless it be in one of the better districts. The large majority of the cows are small and weak; the head is out of proportion, coarse and large; breast shallow and narrow; hips high and peaked; back strongly bent; belly flat; back part short and falling off; hide and hair coarse; milk-vessels not developed. And how can it be otherwise? The calf receives only for two or three weeks a stingy allowance of the mother's milk; afterwards, buttermilk mixed with cold water, and a little meal stirred in; in addition, hay. So the calf is kept a whole year in a dark stall, which is ill-ventilated in summer, and cold in the winter. The calf has no exercise until a year old; it is taken to taken to the commons, (village pasture,) where feed is generally poor and insufficient. The second winter the young animal is kept mostly on straw with a little hay, and sometimes a scanty allowance of kale leaves and oil-cake water. In the spring she has her first calf. Every winter she barely gets through alive, and in the spring we see whole herds of mere skeletons trying to smell the young grass before it can be seen. The cows are in the morning driven with empty stomachs to the commons, which are are generally overcrowded, and only fed an additional feed at noon and in the evening. The result is that the average yield of milk is only three and a half quarts per day, that the cows dry up too soon, are always thin, and sometimes exceedingly so; that they can never be fattened, and their manure is of poor quality, and not much at that. The result of the whole is, that there is no profit in the keeping of stock, and the cows are called a necessary evil. So 75 per cent. of our farmers do call them. Now tell me if we Europeans have a right to throw stones at your western men, who let their cattle

run out all winter, to seek shelter in fence corners and lick snow to satisfy their thirst?

One of the greatest drawbacks to good farming, is the scattered situation of many farms. A foreigner will shake his head and perhaps doubt the truth of my statement, or think I am generalizing exceptional cases. But the fact is, we have whole townships, and a very large number of them,—and have them in the north and the south, on the borders of the Rhine, on the Weser, in Bavaria and Saxony—where the most deplorable scattered state prevails. I know a man that owns altogether 90 acres in one township, which are scattered in 145 different places; to many of his fields he can only get over his neighbor's field—consequently if his neighbor sows oats, he must sow oats too, or else he must leave his rye in the field till after his neighbor's oats are harvested. I know a township, which consists of 18,000 acres of farming land, divided up into 22,325 different parcels, although the number of proprietors is only 85. I could give you hundreds of such instances; and now tell me, how can a man farm well under such circumstances? And can anybody grow fat on such split-up soil, except he be a lawyer? I repeat once more, that I do not intend to draw a picture of the country as a whole, but only mean to describe a few of the shady portions.

You ask how such a state of affairs came to grow up. Let me give you one sample. Two hundred years ago one man, himself a member of an old family, owned a fine estate of about 1,200 acres. The farming land, according to the usage of the time, was ridged up into strips each about 30 feet wide, to facilitate the surface drainage. He had two sons, and wanted both to share equally in his estate. So he divided between the two by giving each one alternate pieces. In this way each one received 600 acres in perhaps 200 or 300 parcels. Now if each of the brothers had left six heirs, and divided amongst them in the same manner, we should have the once coherent estate split up into 4,800 pieces during two generations. Well we laugh at such proceedings, but we might as well cry. For by such practice 100,000 freeholders that might be well off and in easy circumstances, are hopelessly tied down in poverty and apathy, and the national welfare is crippled by such senseless management. We are trying to change this state for the better, but it is a heavy task. Great results have been attained in several smaller districts within the last ten years. I could show you a township where a thorough consolidation has taken place. The farms have been laid out in regular shape, good roads built. There were before 18,000 parcels, comprising only 8,240 acres; now there are only 1,065 parcels, and the cost of the whole proceedings is only 50 cents per acre. Before this consolidation there was a constant trading of land at low prices, say $50 per acre; now you find it a hard job to buy any land, even if you offer $300. Much more stock is kept now, and kept much better, and the appearance of everything begins to change for the better. But in spite of such undeniable advantages, it is a very difficult thing to make so many land owners, that are for the most part ignorant and narrow minded, agree to an arrangement by which every one can and must be a gainer. For many are afraid, not that they should lose, but that others might gain more. So, for instance, the Agricultural Society of the Rhine Province sent a committee, numbering nearly 30 men, of influence and practical judgment, to investigate the results of consolidations made in Westphalia. The committee were highly gratified with what they saw, and strongly recommended to their countrymen the adoption of similar measures; but though the strong influence of the government was aiding and advocating the same course, not a single consolidation has as yet been carried out in the Province of the Rhine. It is almost incredible with what obstinacy ignorant men will sometimes work against their own interest. So ten years ago the commissaries who carried out the first plans of consolidation, had to be protected from violence by military force while surveying the lands. At present the same men who then threatened to kill the commissaries, will run out and shake hands with the latter whenever they pass, and tell them how very much gratified they are by the change.

One more sample may show you that not all is gold and science here. We have, in the country between the Holland frontier and the lower Elbe, on both sides of the Weser, large plains of light soil, covered partly by heath, and therefore called the heath districts. The population there is thin. The main crop on the plowed land is rye. Of this latter grain we find almost universally good crops, but they are bought at a dear price. Rye is raised year after year on the same piece of land. A committee of investigation sent there last year stated that they had found one field on which, according to reliable testimony, seventy-three crops of rye had been raised in succession, and probably a good many more, but the record went back no further. Such practice is the rule in those heath districts. Possibly there may be fields that have borne 500 crops of rye in succession; the whole district raises nothing but rye, and very little buckwheat and potatoes. The crops are generally good, and as no artificial fertilizers are employed, the question is how such results are attained. The answer is very simple. For every acre of farming land, three to five acres are kept idle merely to be skinned. The latter serve for pasture, and every year from a portion of them the sod is taken off, hauled into the stables for litter, into the barnyard and into compost heaps. The cutting, hauling and preparing of these sods takes up more than half of all the force on the farm, both teaming and hand labor. We find often four horses kept on 40 acres of farming land, while with different management, with proper rotation of crops and labor divided through the various seasons, these four horses would be sufficient for 160 acres. So we find that the pride of the heath farmer, his rich field of rye, is raised at a heavy expense of labor and by devastating ther large portion of the farm. We find the farmer himself, though he owns hundreds of acres, barely able to supply the necessaries of life.

If we contemplate these and similar drawbacks to our agricultural progress, we will find that ignorance and want of education is at the bottom of them all. Their root is not in the country, but in the people, and as intelligence and better knowledge are spreading, we shall witness an astonishing development of our agricultural affairs.

Munster, Prussia. W. V. L.

Saving Dahlia Roots through the Winter.

The latter part of summer I earth up around the stalk to prevent freezing. Four or five days after the frost has killed the tops, I take them up. If left any longer, they will commence sprouting. I then cut the stalk four inches long, then with my knife pare off all the outside to the eyes or crown. By so doing, the stalk dies more readily. I have lost more roots by rotting around the crown than by any other way. S. WORDEN.

Oswego Co., Dec. 3.

[For the Country Gentleman and Cultivator.]

THE ACTION OF GYPSUM.

MESSRS. EDITORS—Gypsum does act according to Agricola's chemical explanation, given in Co. GENT., p. 347, but only to a slight extent.

It is an established fact that gypsum has the property of absorbing ammonia in a moist state, and of returning it in a dry state. Thus if gypsum is applied to any of the leguminous plants, possessed of broad leaves, after heavy dew, the absorption of ammonia from the air will readily take place during the cool nights, and the gypsum being saturated with ammonia, will return the gas at the first rays of the rising sun, when the plants will absorb it readily, and greatly benefit from it.

Hence the propriety of applying gypsum only on the well grown leaves, so as to obtain a large surface of absorption. Hence the action of gypsum on leguminous crops on every soil. Hence also the limited action of gypsum on grain crops, for not having a sufficient surface of leaves to act upon.

I have seen chemical experiments carried on at the Imperial Agricultural School of Grignon, to establish this fact. A strong current of ammonia was discharged in a bottle containing pieces of gypsum in a wet state. After one quarter of an hour of absorption, the pieces were handed round and did not give the least odor. Being then dried on the sand bath, they were a few minutes after passed round again, and then gave the strongest smell of ammonia, illustrating to perfection the action of gypsum when applied on crops. J. PERRAULT,

Pupil of the Imperial Ag. School of Grignon, Editor, &c.
Montreal, C. E., Nov. 28, 1862.

[For the Country Gentleman and Cultivator.]

THE POTATO CROP OF 1862.

There have been several articles recently in the Co. GENT., on late or early digging of potatoes as a preventive of loss by the rot. This year, however, in most localities no rot has prevailed—the season has been remarkably favorable for the sound ripening of the potato crop. In Western New-York the crop has been a fine one, and we have even succeeded in gathering quite a fair crop of that best of all baking potatoes, the Mexican. This variety has been very subject to rot of late years—this year scarcely at all. The remark is true of the round Pinkeye.

Some have thought that digging the potatoes early—especially when the tops indicated rot—would prevent much loss from the disease. "J. L. R." of Jefferson Co., says this is his experience. Others have contended that pulling or cutting off the tops when indications of rot appeared, would answer the same purpose, and those affected might lie in the hill with the others, so as to be sorted at digging, saving the trouble had in the case of early digging when a portion rotted after gathering. We thought to try it this year, but the favorable season gave us good potatoes with, as well as without, tops in the case of the Mexicans, upon which we experimented. Some withering and rust of the tops appeared in September—a few of the tubers began to be discolored, so we pulled the vines on several rows, and covered the potatoes nicely with soil. In November the whole were dug, the crop was equally sound—but few rotten ones, and the only difference discoverable, was that those with tops were rather larger and fairer than those hills from which the vines had been removed.

The Prince Albert has this year had full time to ripen, and its quality is far superior to that usually had in our shorter seasons, when the vines have been killed by the frost. The same is true with us of the Peach Blow. These two kinds yield more largely than any other of equal quality with which we are acquainted. H.

Niagara Co., Dec. 1862.

COOKIES THAT WILL KEEP TWO MONTHS.—One pint sour cream, one pint white sugar, butter the size of an egg, one teaspoonful of soda, two tablespoonfuls of caraway seed.

[For the Country Gentleman and Cultivator.]

CONCRETE HOUSES.

A. S. LOVELAND of Granby, wishes information in relation to this mode of building. He says—That is the best material for the million to house themselves in—is used in the old country and in the new, and, so far as I can learn, with the greatest satisfaction. There must be a saving of more than one-half in labor and material. Several houses have been recently built in Hartford, of concrete—plastered outside and in on the wall, and warranted never to wet through.

Several farmers want to build about here in the spring, and would like to build in this way. Now could you not, from your own knowledge, give us a description of the mode of rearing such a house? The great difficulty must be found in securing the angles, preventing spreading and bending. Could not strong hoop irons be bent and laid across the angles to guard against parting? Should not strips of scantling be set at the corner of the house, plumbed and fastened, to carry up the boxes? How are the boxes to be secured at the ends where they may meet? and how many layers can be put on in a day? Where stones are used, are they not all packed, as a layer of mortar and a filling with stone. I think a house should be but a story or story and a half, where such a wall is carried up, if not 12 inches thick. Could not flues be carried in two walls so as to give one tile each for 4 rooms.

I may be asking too much; but if you should be unable to attend to it, you have doubtless a hundred correspondents, men of experience, who would take pleasure in letting their "good works so shine, that others may take knowledge thereof, and be led to follow."

Would shell lime, water slacked and transported, answer for mortar?

I am a clergyman and farmer, and think of trying my hand as builder also, that I may "lead the people in a way they have not known." When people find they can build a house out of the earth, and do their own labor, they will give to the country something of that appearance of neatness and beauty which characterizes the village. A. S. L.

Some concrete houses have succeeded well, and others have proved a failure. It is absolutely essential that the very best fresh lime be used, and very clean sharp sand; and without good materials, failure is certain. A book was published some years ago on the subject, by O. S. Fowler, but we do not find that the mode of building has been extensively adopted, notwithstanding all that was said in its favor; and there is some question, in view of the difficulties of doing the work right, of its general adaptedness. Having, however, had no experience with this mode of building, we should like to hear from those who have experimented—and if successful, will they please furnish concise and full directions for accomplishing the work.

FEED OF FARM HORSES.

W. R. Lewis of Milford, Mass., says in the American Agriculturist, that after long experience he finds that horses will do more work and last longer, and be in better condition, when feeding cut hay and corn-meal, than when kept on dry hay and oats. Cracked corn and oats make a very good feed for noon when in a hurry. The notion that horses should have hay before them all the time when in the stable, he remarks, "is a false idea; all kinds of animals will do better on regular meals. Farmers usually feed too much dry hay. You may keep a horse eating all the time and not have it thrive." In regard to carrots he says, "I would feed carrots all winter in small quantities, especially to young horses and breeding mares. This keeps them in a healthy condition. Team horses may be fed on them once each day to advantage."

[For the Country Gentleman and Cultivator.]

Pruning and Thinning Forest Trees.

Eds. Co. Gent.—At page 337, current vol. of the Co. Gent. your correspondent Quercus makes mention of a statement of mine about thinning and pruning forest trees, as published in the Country Gentleman of August, and in The Cultivator for October, 1855, and in consequence of his remarks I have this day, Nov. 25th, been to examine the wood-lot, which is about two miles from my place. I was much surprised in noticing the increased growth of trees since I visited the lot about seven years ago—especially on that portion I thinned out some over thirty years ago. The owner has done nothing to it, except occasionally cutting out a few dead trees for toppoling walls. It was the opinion of both of us that the portion thinned out is now worth twice as much per acre as the part not thinned—not, however, that there is twice the amount of wood on the thinned portion, but from the extra size and length of the trees, and their enhanced value for board logs and timber. There are hundreds of Norway and white pine trees that could be hewn or sawed into square timber from 40 to 50 feet in length, suitable for the frames of large houses, barns and other buildings. There are some dead standing trees among those where thinned, but they are wholly the smallest sized ones, having been overgrown and shaded by the larger trees.

On the part of the lot left to "nature's thinning out," there are a vastly greater number of dead trees; many of them have fallen, and are now lying on the ground, and are nearly worthless. Of the dead trees standing, cords might be cut; they are well dried, and would make capital fuel. I scolded the owner for suffering such a waste of firewood. The trees are now about fifty-five years from the seed. The lot was burned over about the year 1801 or 2.

Let even the most prejudiced man examine this wood and timber lot, and he would at once be satisfied of the utility of thinning out a part of the growth of trees where as thickly massed as were the seedling trees upon this lot; and Quercus very sensible tells us why it is so. He says: "The same evils result from the too thick growth of young trees as of farm or garden crops—none grow so well, and a part are choked out, as will be seen in the many quarter grown and half dead trees distributed all through the too thick plantations."

In thinning out the trees on thick plantations, care and judgment should be exercised. I have seen wood lots of young trees thinned too much, so much so that the leaves were mostly blown away, and ultimately the tough rooted grasses covered the ground and very much lessened the growth. The thinning out of such lots should not all be done at one time, but I think the better way would be to go over the thinning process every eight or ten years, the wood poles, &c., amply repaying for the labor.

Warner, N. H., Nov. 25, 1862. LEVI BARTLETT.

[For the Country Gentleman and Cultivator.]

HURDLING SHEEP ON GREEN CROPS.

Messrs. Editors—As perhaps at this dull time of the year you are not so short of space, or I might say, have not so much to say about cultivation and crops, thus giving room for other matter relative to agriculture, I would like to have some Englishman, long resident in this country, or some American who has witnessed English management of sheep, explain how it is the system of hurdling off turnips, swedes, and other crops, has never been introduced here, and how it is that the hurdle is unknown when so universal in the old country. I have asked the question many times, but the answer given, that the winter is so much colder, don't satisfy, because, though it would account for January and February, and even some seasons for parts of December and March, yet in Sept., Oct., Nov., April and May, there does not appear any reason why the land should not be benefited by the folding as much in America as in England, nor does there seem any cause why the penning of sheep by daily giving them just what they require and will clear up, should not be as good economy in this part of the world as the other. Millions of yearling wethers are sold there during spring at the markets and Fairs, the dead (dressed) weight averaging one hundred pounds, and the fleeces ten pounds, none of which have ever tasted corn, grain, or aught but what has grown and never been removed from the fresh piece of ground they have been periodically let on, excepting hay with the roots; and having mentioned Markets and Fairs, how is it these really great accommodations to buyers and sellers, have never been established in the country towns of such a "go-ahead" nation as this? John Bull.

[For the Country Gentleman and Cultivator.]

COTTON GROWING IN NEW-JERSEY.

Messrs. Editors—I enclose you a sample of a small lot of cotton raised by myself. I am inclined to think we can successfully raise the article if the seeds are first sprouted in a hot-bed and then transplanted—otherwise I fear our season is too short for it to mature fully. My seed was planted the 10th day of May, yet only about one-third burst their pods, and the frost held off rather later than usual this year. It is a beautiful plant, and for the information of those who have never seen it growing, I would state that the seeds burst the ground precisely as do beans. It soon resembles a buckwheat stalk, and after it is six inches high, grows very rapidly, and assumes the form of a little tree. It bears a flower in August very much like the common Hollyhook, at the base of which a little green body soon forms, which grows very fast, so much like a green hickory nut that one can hardly tell the difference. After awhile the flower falls off, leaving the green pods, as many as twenty or thirty hanging in full view. Finally the pod turns brown, and when fully ripe bursts, and exposes to view King Cotton. Whether it can be raised for profit or not, it is a highly interesting plant to cultivate for pleasure, and a very beautiful house plant, as it could be easily trimmed in so as to take up little room. Sam. G. Cattell, M. D.

Deerfield, Cumberland Co., N. J.

What is the Best Way to Harvest Corn.

This is a question frequently asked and answered, by different farmers very differently. I mean corn on the hill. Some say husk and throw on the ground, and afterwards pass around with wagon and pick it up. There are some objections to this mode—one is, there is a little gets shelled off and is wasted; another is, unless considerable pains are taken in gathering up, there will be a good deal of rubbish with the corn. Some of our best farmers let their teams stand in the barn and husk and gather in this way. Others gather by driving a wagon along, and husk and throw into the wagon at one handling, as they pass along. Another way still is to set the wagon in the corn, centrally for a load, and use a basket to throw the corn into as it is picked off, and afterwards emptied into the wagon box. In this way the work can be neatly done, and with very little time spent with team, as they are frequently wanted at the plow or other work as the picking is going on. A. Moss.

Belvidere, Ill., Nov. 1862.

A Large Cheese.—It is reported that a dairy firm, Messrs. Steele & Bro., owning seven hundred cows, near San Francisco, Cal., made a cheese weighing 1,779 lbs., which sold for 25 cents per pound in San Francisco, amounting to the round sum of $444.75!

SWEET WILLIAMS.

HENDERSON'S PERFECTION SWEET WILLIAM.

We have few more really deserving flowers than the Sweet William. Even old and what we now call poor sorts are desirable, and could hardly be dispensed with had we no better; but HUNT made a great improvement in this flower, and for a few years we have grown from his seed with great satisfaction. From various sources we learned that Mr. BRAGG of Slough, had even surpassed HUNT, and that his Sweet Williams were models of perfection. In 1861, E G. HENDERSON & SONS, the London Seedsmen, succeeded in obtaining his whole stock of seed, and named them HENDERSON'S PERFECTION SWEET WILLIAMS. They were represented as "a decided improvement upon HUNT'S varieties, showing the most brilliant tints, with broader flower lobes, and smooth, even, rose-petaled margin, including pure white ground colors, with rich violet-crimson and violet-purple inner belts or colored circles. Others finely marked with bright cherry-colored belts on snow-white ground. Some flowers blended with the above colors show bright carmine and violet crimson grounds with white margins and picturesque white centers, varying in others to cherry or violet-purple and maroon-crimson, in striking contrast with starry white inner belts." This strain of Sweet Williams we flowered this season, and we can say that they far exceeded expectation, and would justify the most glowing description. The engraving was taken from the earliest specimen flowered, and is inferior in size and form to those that bloomed later in the season. The flowers were in most cases larger than an American quarter, and for delicacy and brilliance of color, perfection of form, and general beauty, equal to the best of the Phloxes. No flower of its season attracted such general and merited attention.—*Ill. Ann. Register.*

THE ONION FLY.

The ONION FLY (*Anthomyia Ceparum*, Meigen,) is a small ash gray fly, about half the size of the house-fly. It is represented magnified in fig. 1, the cross lines underneath showing its natural size. This fly lays its eggs on the leaves of the onion close to the ground, most frequently when the plants are quite small. The maggots

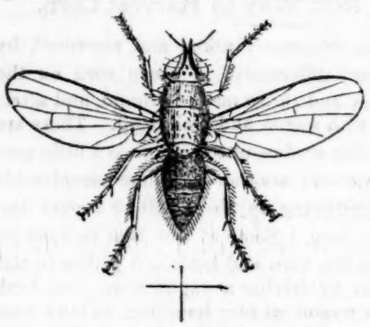


Fig. 1.—THE ONION FLY.

Fig. 2—WORMS OF THE ONION-FLY.

which hatch therefrom are blunt at one end, and taper to a point at the opposite end. They descend into the bulb, where they feed, and remain during their pupa state, as shown in fig. 2. The bulb becomes rotten soon after they enter it, and the leaves above ground die and turn yellow. In particular gardens all over our country the onions are all destroyed, year after year, by this fly. Strewing powdered charcoal over the beds is said to be the most successful measure for repelling these flies from them.

The maggots of other species of this same genus *Anthomyia*, bore in the roots of turnips, radishes, cabbages, and letuce.—*Dr. Fitch in Ill. Ann. Register.*

[For the Country Gentleman and Cultivator.]

POLAND FOWLS.

With these fowls there has been much difference of opinion respecting the applicability of the name. Some, with apparent reason, would divide them into three families—the St. Jago, the Turkish, and the Hamburgh. For the same reason, they rank as Polands all fowls with their chief distinguishing qualities—a full, large, round compact tuft on the head. It is a class of fowls of which their beauty, united to their useful qualities, must make general favorites. All the sub-varieties are of medium size; neat compact form, with full plump bodies, full breast, lead-colored legs, and ample flowing tails.

We shall now speak more particularly of the White Crested Black fowls, of which our figures above is a good illustration. They are more commonly known as the Black Poland; but from whence their title to *Poland* was derived has eluded all research, unless it be that, on their over-land passage from India, they sojourned in Poland before arriving in Great Britain.

The White-Crested Black Poland fowl, is of a deep, velvety shining black body, with a large white crown of feathers. They should be without comb, with the exception of two small forked bright red points, something after the fashion of a pair of horns, in front of the crown. The tuft or crown to be perfect, should be entirely white; but it is rare to meet one without a slight bordering of black or partly black feathers round the front. If the feathers of the crest are not all white, it is no sign of impurity. Some beautiful specimens of these fowls, which are fully illustrated in the above figures, now engraved expressly for this article and for the first time presented to the public, were imported into New-York last spring, from Holland.

The White-Crested Black Poland fowls are a very useful

The White-Crested Black Poland Fowls.

variety, and in the estimation of many are equal to the Dorkings; their shape is good, being plump, square, full-breasted, and rather short in the leg; their legs and feet are mostly of a light blue or dusky color.

They are more suited for the purposes of the fancier than the farmer. The chicks are a long while in out-growing their chickenhood; and the full-grown birds are not at their best till their second or third year. They lay a vast number of rather large sized eggs; and are slow to sit; indeed mostly everlasting layers, but less invariably so than some other breeds. Their flesh is excellent, being supposed to be as much superior as their plumage is pre-eminently elegant. Sonnoni tells us that in Egypt they are in great request for the table, and our own experience confirms the preference.

The White-Crested Black Polish fowls sometimes produce pure white chicks of great beauty, but so tender that it is difficult to rear other ones from them. C. N. Bement.

☞ During a recent visit with Edw. G. Faile, Esq., at the farm of his son, Mr. Samuel Faile, at White Plains, we were much pleased with a very simple and effective contrivance which has been in use for some time past in the extensive draining operations there conducted.

We might begin by remarking that in excavating the drains, Mr. F. finds the English tools, although more clumsy in appearance, in the end more handy and serviceable than any he has been able to procure of American manufacture. The annexed figure, (fig. 1.) is a good representation of the English draining spade, and is in constant use. The tool for shaping and clearing out the bottom of the drain, which is often made of the shape represented in fig. 2, proves much more convenient in practice, to have the handle bent *the other way*, so as to use to push forward, instead of to draw back, and to shovel out with.

The ditch is thus completed, and the bottom properly shaped for the reception of the tile—round or pipe tile being preferred, almost as a matter of course now-a-days. If it is as long an arm as many in Mr. Faile's fields, and with as hard a subsoil to excavate, it may require some days to finish it; and, by this time, considerable water will be running in it. The man laying the tile begins at the upper end of the drain; and as he stands, one foot before the other in the narrow ditch, he will find, not only that his feet are constantly imbedded in a tidy little puddle, somewhat to his own discomfort, but also that they dam the water back so as to interfere with the fitting of the tile nicely in its place, and, moreover, that his boots are constantly treading out of shape the neatly excavated channel, softening its bottom or sides, and interfering materially with the workmanlike execution of the job. To overcome all these difficulties at once, is the object of Mr. Faile's contrivance, fig. 3, which so completely effects the object as to render it surprising that no one should have thought of it before. A pair of *Draining Shoes*, if we may call them so, are made to attach to the foot in precisely the same way as skates are strapped on, as shown in the accompanying cut. This *shoe* is made of zinc or galvanized iron, long and broad enough to fit the foot, curving at the bottom like a semi-cylinder, and from two and a half to three inches in height at the middle. The engraving represents it perhaps as rather too broad in proportion to its height.

Fig. 2.

Fig. 3.

In practice these shoes are found to answer a much better purpose than was anticipated. The men put them on at first with some reluctance to rig themselves out in such a way, but soon became so fond of them that they would not dispense with them on any consideration. They exceed the anticipations of their value, because it is found that they answer so admirably to put the bottom of the drain in the right shape, as well as to keep it right. The water lying in the ditch runs through them without impediment, and as they are drawn backward or pushed forward if need be, they clear the way of any soil or other obstruction that may have fallen in the way, and but little practice only is needed to render them as handy in this respect, as they are convenient in not damming up the water or poaching up the mud.

THE JEFFRIES APPLE.

We are indebted to Pennsylvania for some of our best apples. The Jeffries is another fine variety to be added to the list of those worthy of very extended trial. It fruited with us this summer, and is both handsome and excellent.

Fruit medium size, skin yellowish, striped and splashed with crimson; flesh white, tender, juicy, with a mild agreeable sub-acid flvor; season last of August and first of September.

The tree is a moderate, upright grower, ripens up early, and will doubtless prove hardy and suited to the north-west. Worked on paradise it makes a very handsome dwarf tree. A. G. Hanford. *Columbus, Ohio.*

Modesty is generally the companion of virtue, innocence, and real abilities.

ILLINOIS SORGHUM CONVENTION.

A convention, composed of producers of Sorghum and Imphee cane, and manufacturers of syrups and sugars, together with inventors and manufacturers of machinery used in extracting the juice from the cane and manufacturing it into syrups and sugars, met at Rockford on the 3d Dec., and continued in session three days, during which a vast deal of valuable information was elicited on this new branch of industry. The report of the discussions is published in the Rockford Register, from which paper we copy the following report of the committee appointed to examine the syrup and sugar on exhibition, as it embraces many important facts, and shows the progress which has already been made in this business at the West.

Your committee respectfully report that the following described samples are on exhibition, to which we have appended such information as we have been able to obtain:

One specimen of syrup by P. Woolworth of Rockford, from cane that had been frozen. This was worthless, being spoiled by the frost.

H. Foote of Winnebago Co.—Five specimens of syrup. He has manufactured 1,800 gallons.

Sylvester & Daniel Scott, Winnebago Co.—Thirteen specimens syrup. Have made 1,428 gallons. It took from 8 to 14 gallons of juice to make one of syrup. No clarifying done.

C. A. Huntington, Rockford.—Three specimens. Manufactured 1,600 gallons, at a cost of 15 cents per gallon. Juice averaging 7 gallons to 1 of syrup.

C. Cory & Sons, Lima, Lagrange Co., Ind.—Six specimens syrup, and four of sugar made from the Chinese cane, and two from the Otaheitan cane.

L. Meacham, Du Page Co.—Specimens of sugar made from sorghum. He cut the joints out of the cane before crushing.

J. M. Frink, McHenry Co.—Eight specimens of syrup, of which two were from Chinese sorghum. He manufactured 1,085 gallons, at an expense of 11¼ cents per gallon. Eight cords of wood were consumed; men's labor at $1.25 per day, and team at $1. He made 30 gallons per day. He showed four samples of sugar from the Chinese cane. It had stood in the shock eight weeks. The syrup was two weeks in granulating.

V. R. Beach, Independence, Iowa.—Two kinds of sorghum syrup. Manufactured 2,600 gallons. Juice averaged 7 gallons to 1 of syrup. Cost of manufacture 7 cts. per gallon. Made from from 80 to 100 gallons per acre.

Danley & Davis, Winnebago Co.—Three specimens of sorghum syrup. Made 1,800 gallons at a cost of 12½ cents per gallon.

Orlando Clarke, Rockford.—Two specimens syrup, one from early imphee. Obtained 22 gallons from one-tenth of an acre. Manufactured 180 gallons, at a cost of 10 cents per gallon.

D. S. Pardee, Winnebago Co.—Six specimens of sorghum syrup and three of imphee syrup. Made 800 gallons at a cost of 15 cents per gallon. 9 gallons of juice made 1 of syrup.

Harry Spaulding, Ogle Co.—Five specimens syrup. Made 3,000 gallons, at a cost of 10 cents per gallon. Counting wood $3 per cord, labor 75 cents per day, and team $1 per day. Made from 75 to 100 gallons per 24 hours. 8 gallons of juice to one of syrup.

E. H. Seward, McHenry Co.—Eighteen specimens of syrup, part sorghum and part imphee. Made 2,200 gallons at a cost of 10½ cents per gallon. Average of 13 gallons of juice to 1 of syrup.

Belcher of Chicago.—Three samples of refined syrup.

Lewis Nichols, Winnebago Co.—One specimen of syrup. Made 400 gallons. Averaged 8 gallons of juice to 1 of syrup.

Almeron Dodge, Winnebago Co.—One specimen syrup. Made 900 gallons. Average 7 to 8 gallons of juice to 1 of syrup.

Isaac Crisman, Sycamore, De Kalb Co.—Six specimens of syrup. Made 3,000 gallons, at a cost of 15 cents per gallon. Wood $4 per cord, help $1 per day, and team $1.50 per day. His sample of white (or as some call it, yellow) imphee was the best. The cane of this had been frozen twice, and it was made into syrup October 25th. He got 35 gallons from 24 rods of land, with moderate stand of cane. It was manufactured at the rate of 7 gallons per hour. The syrup stood 45° by the sachrometer. The cane grows 13 feet high, and does not fall down like sorghum. The syrup granulates easily. His white imphee yielded 1 gallon syrup to 4½ of juice. Grown on rich loam. He showed four specimens of sugar. Made 1,000 or 1,200 lbs., and obtained 11 lbs. to the gallon. He has the seed of the white imphee for sale.

P. W. Gates, Chicago.—Six specimens syrup made at the rate of 400 or 500 gallons per 24 hours. He could manufacture at a cost of 4 cents per gallon, when he made 1,000 per 24 hours. Juice averaged 8 gallons to 1 of syrup. He showed a sample of sugar.

Chas. Fletcher, Rockford.—Five specimens made 1,300 gallons, at a cost of 11½ cents per gallon. Juice ranged from 5 to 10 gallons to one of syrup.

B. B. Hovey, Winnebago Co.—Two samples of syrup. Made 2,665 gallons at a cost of 9 cents per gallon; 7 gallons juice to 1 of syrup.

J. M. Moss, Waverly, Iowa.—Seven specimens of syrup, and two of sugar. He made 2,753 gallons of syrup, at a cost of 10 cents per gallon. The sugar was made from yellow imphee.

W. G. Cole, Rockford.—Two specimens of syrup. The yield was 105 gallons from one half acre.

A. T. Moss, Boone Co.—One sample yellow imphee syrup. Made 1,200 gallons.

O. N. Brainard, Marion, Iowa.—Two samples sugar; one from sorghum and one from imphee. Made 1,200 lbs. sugar, averaging 12 pounds to the gallon. He had three samples of syrup; made 3,600 gallons, at a cost of 5 8-10 cents per gallon. Juice 9 or 10 to 1 of syrup.

J. E. Youngman, Rockford.—Seven samples of syrup, made 1,870 gallons, at a cost of 11⅓ cents per gallon. Juice averaged 7 to 1 of syrup.

C. D. Roberts, Jacksonville.—Eight samples of syrup and four of sugar. Made 2,500 gallons of syrup, at a cost of 9½ cents per gallon, hiring everything done, and including expense of setting up the machinery. He made 350 gallons in three days and nights. He also had fine samples of sugar from Blymyer, Bates & Day, Mansfield, O., manufacturers of Cook's evaporators.

Pope & Buckbee, Winnebago Co.—Seven samples sorghum syrup. Made 3,500 gallons, at a cost of 15 cents per gallon. Juice ranged 5 to 7 gallons to 1 of syrup.

J. Milner, Rockford.—Three specimens of syrup; made 1,150 gallons, at a cost of 13 cents per gallon. Juice 7 to 1.

G. Anderson, Rockford.—Two samples syrup. Made 250 gallons.

M. Johnston, Rockford.—One sample syrup. Made 1,050 gallons, at a cost of 12 cents.

A. Heart, Winnebago Co.—Two samples syrup.

N. Smedley, Boone Co.—Three specimens syrups; made 1,400 gallons, at a cost of 12 cents per gallon. Juice averaged 6½ gallons to 1 of syrup. He had one specimen of sugar.

Your committee would respectfully report that they have spared no pains in examining the different samples of syrups on exhibition. From the good samples they set aside twenty-seven as ranking first among those exhibited; that as a matter of course there are among this lot, some of superior excellence and purity, but they are so numerous that your committee concluded to designate no one as worthy the claim of superior excellence. Certain it is that, judging from the samples, great attainments and advancements have been made within the last year in the manufacture of syrups; and with the necessary care and attention to the subject of manufacture, as brought before the convention, will enable almost any one to manufacture a very palatable article of syrup. How far

it will be practicable to manufacture for sale and export, every one should be his own judge.

Among the sugars on exhibition, your committee would make especial notice of the following:

L. Meacham of Will Co.—Sugar partly refined, made from Chinese cane.

C. D. Roberts, Jacksonville.—Nine different samples, made of various kinds of cane, and from the mush state to the refined grain.

Cory & Sons, Lagrange, Ind.—Several different samples made from Chinese and Otaheitan canes.

J. C. Frink, McHenry Co.—Four kinds, made from Chinese cane.

C. N. Brainard, Marion, Iowa—Two samples in the crude state, made from the African and Chinese canes.

D. S. Pardee, Winnebago Co.—Several samples from imphee, in the mush state.

Isaac Crisman, Sycamore Co.—Three specimens from the different kinds of cane.

One sample of dark sugar, owner unknown.

J. M. Moss, Waverly, Iowa.—One sample made of the yellow cane.

[For the Country Gentleman and Cultivator.]

Sheep Husbandry---Winter Management.

Editors Country Gentleman—While conversing with your Associate Editor J. J. Thomas, in 8th mo. last, upon agricultural pursuits, he encouraged me to write some essays on my mode of farming directed to you. I am now in my 41st year, and have from my infancy lived on the farm, and up to the present time have labored diligently with mine own hands, yet I never wrote any for the press.

You may recollect that in publishing J. J. Thomas' Notes on visits paid to farmers last year, some account of my system was noticed. Friend Thomas took no notes in regard to my sheep, and I will here state that they have ever been a source of profit to me, and as the wintering season has commenced, I propose to give my views as follows in relation to management, &c.

The prudent farmer has now prepared suitable shelter for his sheep, and if he keeps—say two or three hundred—he has them divided off in flocks of seventy-five or thereabouts. If he has not a plenty of barns with sheds adjoining for all, then suitable shelters may soon be made near a stack or by the side of some lone barn. These may be made of rails, covered with straw, and the sides thatched with same. These can easily be removed in the spring. For myself, I find it advisable to have good hay, corn-stalks and straw, and also the grain trough, near by. Corn, oats, barley, beans and buckwheat, are all good. Quantity—discretionary with the feeder, in proportion to the kind of grain used. Oats are preferable for lambs, and perhaps are the best for ewes. If the sheep are a little dainty and do not eat all up readily, sprinkle in a little salt when they are nearly through eating. The grain may be fed in the morning, or if near the dwelling, mid-day would be preferable.

I feed corn-stalks in the morning promiscuously on the ground, when clean and frozen, and if the flock is not handy to visit at mid-day, then I would fill the racks with good straw for them to feed upon through the day. At night, clear the racks, spreading the straw under the shed, and feed hay in said racks.

This mode makes a suitable change, and if followed up till spring, the stock will look well, and a fine quantity of manure will be made for the farmer's use. Good spring water, easy of access, I consider almost indispensable for the health of the animal. G. M. S.

Cayuga County, N. Y., 12th mo. 10,

☞ "I have profited as much," writes a Michigan subscriber, "during the past two years in which I have taken The Cultivator, from its perusal, as I possibly could have done, I feel assured, by years of hard labor and stern experience."

DESTROYING RABBITS.

A western correspondent of the Prairie Farmer claims the $1,000 premium which some one proposed to offer for the best remedy to prevent the gnawing of rabbits on fruit trees. His remedy is to catch the rabbits, and his wife puts them into the dinner pot. He asks if any reasonable rabbit could be expected to eat fruit trees after going through this process? His boys catch the rabbits in boxes, of which [boxes] he keeps a dozen in his nursery of young trees. The boxes are about 3 feet long, and six or eight inches wide—have a sliding door in one end, held by a spindle running the length of the box. No bait is needed, as he says *you cannot keep a rabbit out of a hole*—and on the least noise to frighten them, they run into the traps for safety. They touch the spindle, and down goes the sliding door. This writer says he never uses any wash, and yet he has never had a tree gnawed. It may be questioned however, if the traps deserve all the credit, as he incidentally gives us a very important piece of information, namely, that a little rat-terrier dog which he keeps, is so vigilant, that it is hard for a rabbit to get time to nibble. At all events, between the dog and the trap, his trees are safe, and many good dinners are the result of the process.

[For the Country Gentleman and Cultivator.]

THE CROPS OF IOWA.

Office of Secretary of Iowa Farmers' College,
Desmoines, Dec. 8, 1862.

Eds. Co. Gent.—I notice in your paper of the 4th inst. a statement purporting to come from me, in regard to the yield of crops in this State for 1862, in which there are several errors, especially in regard to wheat and hay. The first statement I published was in August last, as follows:

Number of bushels of	Spring Wheat	16,500,000
do. do.	Winter Wheat	2,000,000
do. do.	Corn	76,250,000
do. do.	Oats	10,000,000
do. tons of	Hay	1,000,000
do. of	Cattle	700,000
do. of	Hogs	1,421,233
do. of	Sheep	350,000
do. of	Horses	237,000
do. of	Mules	8,000

Since publishing the above I have made critical statistical reviews of the products of this State, which I published in the *Iowa Homestead*, where I made a reduction from the above in the amount of wheat cut, being 15,500,000 bushels. Of the cattle above enumerated there will be or were in January last, 175,000 head, and of hogs for market this winter 900,000 head. I am happy to add that our farmers are receiving fair prices for nearly all their products, indeed I may say all except wheat.

WM. DUANE WILSON.

Irrigation of Grass-Lands.—The *Boston Cultivator*, in a letter on the experiments of Mr. Clark Rice of Brattleboro', Vt., in irrigating his farm, after an interesting description of the process, has the following paragraph:

"Mr. Rice's experience has demonstrated that land may be kept in grass permanently by irrigation, and that neither the quantity nor quality of the crop will deteriorate. He has grass-land which has been irrigated twenty years, and the principal change in the crop has been that it becomes rather finer from year to year. He has one lot which has been irrigated annually for twenty-five years, and all the manure it has had in this time besides water, was a top-dressing of compost of one part yard manure and two parts muck, at the rate of ten cart-loads per acre, twelve years ago. The dressing increased the crop for one or two years, but it has always been heavy. I examined the hay from the irrigated grounds, and found it to be of excellent quality."

[For the Country Gentleman and Cultivator.]

Cleaning Seed Wheat---Depth of Covering.

I would advise your correspondent JOHN F. HILLMAN, (see Co. Gent. of Dec. 18, page 395,) to clean all the cockle out of his seed wheat before he sows, and then there will be none to come up but what may be in the land, and if he makes his seed always clean, that in the land won't long trouble him. This I know from experience.

Now I will tell him how I cleaned all the cockle out of my farm more than thirty years ago. I went to the fanning-mill maker and got him to make a screen for my mill, considerably coarser than common, and put that in the mill when cleaning seed wheat, and let the wheat run a little slower through than common, and in that way I got all the cockle and other small seeds in the box under the screen, and also the wheat cracked in threshing.

If farmers would only use their brains a little more, they would soon get quit of many things that are now troubles.

If Mr. Hillman or any other man, plows in wheat more than three inches deep, it will always come up spindling and poor. Two inches is deep enough to cover wheat, unless the autumn should prove very dry.

Near Geneva, 18th Dec., 1862. JOHN JOHNSTON.

[For the Country Gentleman and Cultivator.]

Management of Permanent Grass Lands.

Permanent pasture and arable lands are of course distinct. Real genuine good grass land should never be plowed after being well seeded down. If properly grazed and not mowed too often, the grass will not fail either in quality or quantity. The first few years it ought not to be mowed at all, and after it will not be necessary to sow more seeds or apply manure if it is stocked with a variety of animals and not mowed two seasons together, always having a full proportion of sheep and some horses, as the latter will feed on the grass growing on the portion stained by the cows, and the sheep are fond of eating the young shoots springing on the parts soiled by the horses. Thus a field, having a right quantity of stock upon it, will be evenly and closely eaten down, which is essential to be done for the sake of quality and a thick bottom, while a contrary course will encourage a rough herbage and a falling off of the finer grasses, thus producing a thin bottom, and worn out appearance. When it is intended to mow the ensuing season, shut up the field in September, and by no means allow the grass to get too old before it is cut, as the hay is not nearly so nutritious, and the pasture is sadly weakened thereby. Doubtless much of the best land is half ruined by this error. (Even clover stands too long, for the week after it is in bloom more is absorbed from the soil than during the previous month.) In a bona fide meadow there is a very great number of different species of grass, which only proper management and time will develop and establish, and to fix and make durable a good pasture, some pains are worth taking, for when once the perennial herbage is perpetuated some liberties may be taken, and by top-dressing mowing may then become annual. In fact, thousands of acres around London have been mowed twice every year for a century, cutting about two tons in June, and a second crop in the early part of September, and by always loading back from market with horse dung double the weight of the hay sold, and brush harrowing and rolling in the spring, from $15 to $20 per acre is paid as rent and taxes, and a good living made then. All the old grass land is protected by leases in the cases, whereby the landlord can recover about $200 per acre for any portion broken up. A large deer park in one of the midland counties, the lowest part of which had 120 acres fenced off annually on the 1st of May, and the hay made in July for 70 years, 800 deer running over it at pleasure the rest of the year, seldom produced more than a ton of hay per acre; but in 1828 another portion of meadow land on the same estate, but outside of the park, was mowed alternate seasons with this, and the farming stock grazed the part of the park (hitherto mowed) every other year during the same time, viz., from 1st of May till July, and the crop of hay increased to more than double in the course of six years, and maintained the increase and improved in quality in every way afterwards. JOHN BULL.

[For the Country Gentleman and Cultivator.]

COTTON GROWING IN SOUTH ILLINOIS.

I will give the result of my experience in growing the staple in Egypt the past season. I planted one-fourth of an acre on the 10th of May, which yielded 320 lbs. of unginned cotton. This will make 80 pounds of "lint," or ginned cotton, which is worth 58 cents per lb. in St. Louis and Cincinnati, and 45 cents at this place. There are three cotton factories at Cincinnati, and one at St. Louis.

The product of my quarter acre being 80 lbs. of lint, one acre at the same rate would yield 320 lbs. This amount per acre with good cultivation, I consider a fair average yield for this locality. It requires about as much labor to cultivate and pick one acre of cotton as it does to cultivate and harvest one acre of corn, as it (corn) is usually cultivated in the Eastern States. The reader should understand that not more than half the labor is expended here, in growing corn than is required in New York.

Many of the old settlers here of southern origin, have been for years in the habit of growing small patches of cotton for home manufacture, but their culture was very indifferent, and of course the yield small. This season perhaps one half of the farmers or land owners in this county have their cotton patches, and they will average not more than a quarter acre: not more than one in twenty has as much as one acre of well cultivated cotton.

One reason why more cotton was not grown here, was want of seed.

Corn and wheat have heretofore been the staple crops of the old settlers, and they are slow to change from one thing to another; besides they were not sure last spring that cotton in large quantities would bring a high price in cash as it now does.

It appears to be the general desire and intention of the Egyptian farmers to go into cotton much more extensively next year. From one to ten acres each are talked of by nearly every farmer I have conversed with lately.

A ready sale for cash at a high rate, "no danger of raising too much," and buyers coming to our very doors to get it, will act as a mighty stimulus to cotton growing in South Illinois next year. A. BABCOCK.

Union County, Ill., Dec. 8.

[For the Cultivator and Country Gentleman.]

Fresh Muck for Grass Lands.

Has any of your subscribers anything new that they can tell us about top-dressing grass stubble with muck *direct from the pit?* I have done it these ten years, and find it to pay better than any investment I can make.

My grass is now so good that I have not foddered my cattle any yet, except when snow lay on the ground, only ten days in all as yet this season. JOHN RICHMAN.

Morris County, N. J., Dec. 13.

DIGGING POTATOES.—I saw in the Co. GENT. an article from J. L. R. of Jefferson Co., on digging potatoes early, which I fully indorse. It agrees with my experience precisely. I find my early dug potatoes save much the use, then, is the present style of analysis to the farmer?" best. S. WORDEN. *Oswego Co.*

ABSTRACTS FROM OUR EXCHANGES.

Root Cellar above Ground.—A correspondent of the Rural New Yorker objects to the mode of constructing root cellars of posts, plank and straw, on account of its forming a harbor for rats. He has made one of two feet stone walls, no stone passing through to conduct the heat. The door frame is furnished with two doors, one opening inwards, the other outwards. The bottom has two coats of water lime, to exclude rats and mice. It has two windows, and is plastered overhead. It is 16 by 20 feet, 7 feet high, and is surmounted with tool-house and workshop. The owner says he finds it best to put no more roots in a cellar than will last two months at a time—for a longer period, they keep better buried.

Prince Albert's Farm.—A correspondent of the Philadelphia Ledger states that the late Prince's Farm was 1,000 acres, 100 of which was wooded and sown to orchard grass, and watered every four years with liquid manure. The arable land was subsoiled and under a rotation—80 Short Horn and Alderney cows were kept—cow stalls and water troughs were of iron. Suffolk and Berkshire pigs only were kept—pig pens built and paved with stone. The garden required forty men to keep it, but the number of farm laborers is not stated. We would like to see a yearly statement of the expenses and profits of that farm, and to know whether the whole net proceeds would have paid for the harness and carriage of the proprietor's wife—the former being of red morocco, gold mounted, and cost $10,000, and the latter (such as her majesty rode in on State occasions) $35,000.

Agricultural Inventions in One Year.—In the official list of "Agricultural Inventions or Discoveries for the year 1861," and a war year at that, are 25 bee-hives, 51 cultivators, 26 churns, 70 harvesting implements, 26 corn-planters, 41 plows, 45 seeding machines, 19 threshing machines, and several other farm and garden implements in smaller numbers.

Renovating Fruit Trees.—The Editor of the Germantown Telegraph copies the article on this subject from the Country Gentleman of Oct. 30, p. 282, and adds his experience as follows:

"We have tried the same thing upon our own premises; but the soil was not put on so sparingly, nor indeed was it directly intended to benefit the trees (bear.) We put as much as from *six to fifteen inches* of soil, mostly muck, over the whole surface, to make a smooth lawn, and was very much afraid at the time, of injuring, if not killing, the trees, supposed to be one hundred years old; but what was our surprise to find the trees the ensuing year unusually thrifty and the crop of pears larger and more abundant than before remembered. And so every year since."

Composts—Muck and Crude Nitre.—J. C. Marble, of Paris, Me., informed the editor of the *Maine Farmer*, in a conversation in regard to composts and manures, that "In making a compost of muck, ashes, &c., he also applied to each load of muck a barrel of the skimmings of crude nitre where it had been refined for the purpose of use in his Powder mill. The compost in which this formed a part was most marked in its results, so much so that he was led to regard it as a most important ingredient to to the compost heap, and should hereafter make use of the skimmings in this way."

Halter Pulling Horses.—The *N. E. Farmer* tells of his cure of a halter pulling colt, which "would break a three-quarter inch rope as though it were a tow string." He says: "We had a halter made double, and of the best materials, and was confident that no horse could break it. It was used upon her in the stable for several days. Whether she made any experiments upon it or not, we never knew, but were always careful not to hitch her to a post, or anything else, that she could start. In a few days we had occasion to leave her while pulling a wagon from the barn floor, and hitched her to a post firm enough to hold two or three horses. When approaching her from the barn, she suddenly settled back upon her haunches, and gave two or three tremendous jerks, that made her tremble at every joint. When near enough we gave her a sharp touch over the head with the whiplash, when she tried the experiment once more, and that was her last. After that, a piece of common twine was sufficient to hold her in the stall, or to any post."

Mixing Varieties of Corn.—A correspondent of the *Boston Cultivator* makes the following statement:—"A few years ago I planted some sweet corn—Stowell's evergreen, so called—near some of the smallest variety of white parching corn. At harvest, I found the two varieties, distinctly marked, among the ears of *both* sorts. The next year, I selected some of the most unmixed parching corn, and planted it. At harvest it was more than double the size of the parching corn originally planted, and had none of the *shrivelled* character of the sweet corn. The third year's planting produced a variety of whitish, middling early corn, more than double the size of the parching corn first planted."

The Cheapest Food.—The cheapest and most nutritious vegetable used for food is *beans*. Professor Liebig says that pork and beans form a compound of substances peculiarly adapted to furnish all that is necessary to support life. A quart of beans costs in Cambridge, eight cents; half a pound of pork six cents. This, as every house-keeper knows, will feed a small family for a day with good strengthening food. Four quarts of beans and two pounds of corned beef, boiled to rags, in fifty quarts of water, will furnish a good meal to forty men at a cost of fifty cents—one cent and a quarter a meal.

To Prevent Horses from Jumping.—We know it is not jumping time, or rather pasturing time, but here is an important item which it is well not to pass by. A correspondent of the *Iowa Homestead* was riding with a friend, and observed that one of the horses had a hole in each ear. On inquiring the cause, he learned that it was to keep the horse from jumping. "Why," said he, "a horse don't jump with his ears." "You are mistaken," replied his friend; "a horse jumps as much with his ears as with his feet, and unless he can have free use of his ears he cannot jump." He ties the two ears together and has no more trouble with the horse.

Illustrated Annual Register of Rural Affairs, for 1863.—In good time for everybody to furnish themselves with it, the ninth volume of this instructive series makes its appearance. We thought the rich treasures of instruction contained in the previous volumes had nearly exhausted the all-important subjects, but a glance over this reveals the fallacy of such a thought. At the trifling cost of 25 cents, remitted to Luther Tucker & Son, Albany, N. Y., a fund of practical information would be returned in this number of the *Register.—N. Y. Observer.*

The number of this useful and unique little annual for 1863, has been issued, and, through the kindness of a friend, we are favored with its perusal. Like its predecessors, it is filled with useful and practical articles on the affairs of the farm, garden and household, and is beautifully illustrated by 140 original engravings, many of them from the pencil of that accomplished artist, and the author of the work, John J. Thomas. In no work with which we are acquainted, is there to be obtained so much useful and practical information on rural matters, for the small sum of 25 cents. Published by Luther Tucker & Son, Albany, N. Y.—*Maine Farmer.*

[For the Country Gentleman and Cultivator.]

SURFACE MANURING.

The washerwoman exposes her linen on the grass to the influences of sun and dew, to whiten and extract stains. Does the grass or ground gain what the cloth loses?

The farmer, leaving some scatterings in his hayfield, after two or three days goes to rake them up; he finds them worthless. The color, sweetness—in fact all the desirable qualities of hay have gone. Has what the hay has lost, been gained by the soil?

Again, the farmer spreads his green manure on the ground, and somebody says, "All right. What the manure loses the soil gains—there is no waste." A sensitive man passes such a field, and his nerves of smell are very much offended. Poh! says the farmer, to notice such a matter is effeminate. But, friend, aside from smell, isn't your manure wasting? Why, no, how could it—where could it go to? As long as the scent remains on the field, if that is of any value, I've got it, havn't I? Ah! but I noticed the effluvia a long distance before I reached your land. The air is not motionless—what rises from the ground will not fall again in the same place; besides what active agent is there which should tend to make it fall to the ground after once rising? Have you such an abundance of manure that you can thus afford to enrich your neighbors' land? Why, no, I cannot get enough for my own, much less for my neighbors' land. I declare, I never thought of that before! I guess there is a leak that ought to be stopped.

But, stranger, wouldn't you ever top-dress grass lands? Yes, but not with green or long manure, for what animal and vegetable substances it has, fit for immediate plant food, can be more certainly used with economy some other way, and all the rest, which is at least nine tenths, if not nineteen-twentieths in bulk, is mere coarse fibre, which, when thus spread, amounts to mere mulching. You would think your neighbor crazy, who, after putting his hay in the barn, should commence carting it out on the ground to spread as mulch. Certainly. Yet this would be less labor than to feed it to cattle, to say nothing of the wear and tear of their grinders.

Well then, you would rot the manure before using, would you not? Yes. But clear rotted manure would lose too much by exposure, spread as a top-dressing; besides it is too concentrated to be appropriated by plants as food until it is diluted by rains or wasted by dews and air.

Manure should be used like baker's leaven; first, to quicken and enlarge the compost heap; and second, to make of the whole farm a compost heap by incorporating it in the soil, that no benefit from it be lost.

Where one load of manure is mixed with two loads of clay and muck for sandy land, or with sand, leaves, and muck for clayey land, thus making three loads of compost fit for immediate plant food, it is poor policy to lose two-thirds of the benefits that might accrue from it, is it not?

True, I always thought it labor wasted to make a compost heap; but if what you say is true, it will pay. I must think the matter over.

Remember that a compost heap must be made properly to pay well, and for grass land it must be carefully fermented and worked over so as to be finely pulverized before using. Even then it would be well to stop and consider before applying to *any land* that is not too strong or wet to plow.

Often plowing is worth as much to land as a good dressing of manure. In such a case you double on the advantages of a top-dressing with the same amount of manure. Plow, spread the manure from twenty to thirty cart loads per acre, on the furrow, cultivate or harrow faithfully, sow on grass seed and finish with a good roller, and see if it does not pay. Don't be afraid to use the plow. It lightens, warms, dries, changes and deepens the surface mould—opens it to the air, and pulverizes it for the grass roots. And by making calculation and taking a little pains, a rich greensward may be turned in that will add much to all the other advantages. The soil is thus constantly being bettered, and the result is better crops.

S.

[For the Country Gentleman and Cultivator.]

LETTER FROM CALIFORNIA.

Rio Bravo Ranch, Oct. 23d, 1862.

Messrs. Editors—This sheep ranch is about 80 miles back from the Pacific coast and in 35th degree of latitude, surrounded by mountains and rolling hills, adjoining a wide extensive plain of prairie land, as far as the eye can extend. As yet this region is but sparsely settled. The whole is better adapted for herds of cattle, horses and sheep, than for agricultural purposes. However, in many localities, fruits and all kinds of vegetables and grain can be grown in abundance. In and about the lakes there are many swine shepherds.

This ranch borders upon Kern River, which heads a long distance above in the mountains. The water is soft and always cooled by the mingling of snow-water from the Sierre Nevadas. We are less annoyed by flies of all kinds and musquitoes, than any other section of country I was ever in.

Kern river is full of fine fish, and its bed of fine gold, and some day near will be worked out to advantage. The soil in almost all this region is of a rich alluvial and intervale, from two to sixteen feet in depth. Once, long since, this country was all under water. Oil springs, asphaltum and salt, crop out in many localities. Several sulphur springs on this ranch.

This climate is even; one day is the counterpart of the preceding; only slight frosts and few of them, during the winter months, which is the season for sowing the small grains and potatoes in some localities, which mature better when planted in December.

Our best houses are made of dried brick—"adobes"—from the common earth and cut straw mixed, four inches thick, eight wide, and sixteen in length—the rooms sometimes papered. The roofing is usually constructed of tule weed.

Tens of thousands of acres lie vacant, unoccupied, that are suitable to grow barley and wheat, or for stock raising. For herding, I have seen no better country than this; stock keep in high condition, fit for the shambles the year round.

Sheep grow to a large size, and very prolific. Lambs may be allowed to drop at any season of the year. Last spring the crop of lambs raised here was over three thousand, and this fall near four thousand. It is not uncommon for the original Spanish sheep to bear four lambs; and three to a birth is quite common; more than one-third yean twins. One thousand strong lambs in play, skipping over the hills, is a pleasant sight. About two thousand old sheep comprise one flock, which requires one steady shepherd and two additional at yeaning time. In this even temperature of climate, the sheep produce more wool than in hot, cold or changeable climates, while it is free from burrs.

Twenty-five miles south of this, in a dell of the mountains and hills, there is an old Indian settlement, now under the charge of our government. This year they raised over three thousand five hundred bushels of wheat, and as much of barley, upon two hundred and ten acres of ground, without irrigating. The wheat produced from single heads ninety kernels; in some instances as many as one hundred and seventy were shelled and counted, of perfect grain from one head.

This reserve lies in the shape of a horse shoe, opening into a vast plain upon one side. The surrounding hills are covered with wild oats, clover, and other grasses and cereals indigenous to the country. Here peaches, grapes, figs and pomegranates grow luxuriantly. Fig trees eight inches in diameter and as many years in age are in full bearing. Several brooks and mountain streams pass along

side and through this plat, pure and cool. The water is used for irrigation, mill, and other purposes.

This rich valley is well adapted for a working colony, association, or settlement for those who admire the pure, rich and beautiful. Ten thousand acres may be covered with fruit and ornamental trees, arranged in a picturesque and pleasing manner, producing to the interior view a paradise below. This is embraced in a Spanish grant of twenty-two leagues, or 97,400 acres. *The whole* has recently been offered for the sum of twenty-five thousand dollars, including many buildings thereon. The Indians are to be removed to some other locality at the cost of the general government, which sum, when expended, would buy up and settle them upon their own land, the home of their fathers, and said to have been granted them by the Mexican government, for ninety-nine years.

This is a favorable location for rearing poultry. There is a weed which produces a seed the size of buckwheat, that has the taste of pepper, which they eat with avidity. In many parts of California poultry look wan and sickly. Sometime since I sent you eight varieties of clover which I gathered in these parts. I forward you a package of seeds from a valuable melon which was presented me by an Indian chief who cultivates land upon this river. More anon. SOLO. W. JEWETT.

[For the Country Gentleman and Cultivator.]

FEEDING COWS IN THE WINTER.

For winter feed for cows that give milk, I have never tried anything that gave better satisfaction than good bright corn fodder and carrots. With these, and an occasional mess of cabbages, say two or three times a week, we have made as good butter as I ever saw, both as regards color and flavor and keeping qualities. We have more than once kept butter—made from cows fed in this way in December—until the next June, and had it as sweet and good as when first made. And to my mind better, as I believe that well made butter that keeps well, will in two or three months, acquire a certain ripeness, or rich nutty flavor, that makes it superior to any new butter. We seldom lay down any butter for winter until Dec., as we are sure of making good butter then, and plenty of it. This is another object in feeding well, and such kinds of feed as are well calculated to make cows give plenty of rich milk. By so doing we are now (about the middle of January) making from three to four pounds of butter a week, from cows coming in in the spring, while most of our neighbor's cows, that don't have any extra feed, are now dry, or nearly dry.

Besides the kinds of feed already alluded to, there are many others, as the different kinds of roots—also of grain and of bran. Of the latter, I have found that made from buckwheat, decidedly the best, making more and better butter. Wheat bran increases the amount of milk, but seldom makes butter of first quality; but will do better with the addition of a little Indian meal. If feeding clear grain, I prefer corn and oats, mixed in the proportion of two bushels of the latter to one of the former, and ground. But I consider this pretty strong feed, unless mixed with wheat bran or shorts, or fed in connection with roots, such as flat turnips, mangel wurtzels, &c.

In feeding beets and turnips to cows, I have found it a very good way to mix them together. As for instance, if I have mangolds or ruta bagas, or swede turnips, I have mixed and fed them together with very satisfactory results; at least as far as amount of milk is considered. But I have found that the butter made from such feed, is not quite equal to that made when feeding carrots, though both are fed with the same kind of corn fodder, and with the same amount of cabbages. But when fed in this way, I have never found any taste of the turnips in the milk or butter. I have never made any experiments in feeding parsnips, but intend to try them in the spring. Winter set in a little too soon to allow us to gather any in the fall for that purpose. I raised a fine little patch of I think sixty or seventy bushels.

But as there is nothing, according to my experience, equal to carrots to feed with corn fodder, to make good butter in the winter, so I think there is nothing equal to good corn fodder to feed with carrots, for the same purpose. By good corn fodder, I mean such as was cut up before the corn was dead ripe, or had been injured by the frost, and saved without damage, retaining its bright green color. Next to this I prefer hay made from a mixture of timothy and clover, and June, and wire grass, cut green and cured in the cock, as coming as near to fresh pasture grass, as perhaps anything in the shape of dry fodder. But this, though better to make cows as well as other stock take on flesh, I have not found quite as good as corn fodder to make cows give milk or make good butter.

Of course cows to do well in the winter, must have a good warm stable, and be well bedded, and taken care of.

Western, N. Y. F.

[For the Country Gentleman and Cultivator.]

QUACK GRASS.

In answer to your correspondent's inquiry as to the way of eradicating "couch grass," or quack grass as we call it here, I would say that we destroy a great deal of it in this way. After the first breaking up of the sward no attempt is made to destroy the quack, for it would probably be of no use; nor have I any idea that QUERCUS' remedy of deep plowing with the Michigan plow, would avail anything. You must fight it the first season with the cultivator and the hoe. But after the second plowing you will thoroughly work your land, alternately with the roller and two horse cultivator; first roll and then cultivate the same way you plowed; then follow with a wagon and hand rake. The quack which the cultivator throws out of the ground, is raked up and carted away. Then roll, cultivate and rake as long as you can afford the time. You will be astonished at the amount you will draw away. I use Peckham's cultivator with steel teeth, but Sayre & Remington make a cultivator with long and very slim teeth, probably better adapted to this purpose. They call this latter implement Johnston's Cultivator, I believe, because highly recommended, if not designed, by Mr. JOHN JOHNSTON of Geneva. W.

Utica, N. Y., Dec. 7.

CHICORY COFFEE.

A correspondent in New-Jersey, who says he has raised considerable chicory the past season, wishes to know how to mix it with coffee for use. The root should be cut in uniform thin slices, and then kiln-dried, which may be done by putting in plates in a moderately heated oven. Thus thoroughly dried it may be kept through the year. When wanted for use, it should be roasted and ground the same as coffee. On the Continent it is used alone, and is said to make a very palatable and wholesome drink. In England it is used to a great extent, mixed after grinding, at the rate of one-third chicory to two-thirds coffee, which is said to be generally preferred to pure coffee.

How to Make an Omelet.

You recently published a receipt for omelets. Let me give you one:

One egg—two tablespoonfuls of milk—one teaspoonful of flour—salt to flavor. Beat thoroughly together. Butter your frying-pan well. Fry batter till the under side is lightly brown, and the whole as consistent as baked custard—then with knife underneath, roll it.

When eggs are at present prices, you will find the above a more economical dish than your three-egg omelet. H. H

Coffee Made from Carrots.

Carrots cut into pieces of the size of beans, and roasted, make a wholesome and excellent drink, to be recommended at this time of high prices. S. *New-York.*

THE CULTIVATOR.

ALBANY, N. Y., JANUARY, 1863.

☞ Volume 3d of RURAL AFFAIRS, (comprising the reading matter of the ANNUAL REGISTER for the years 1861–2–3,) is now ready, and orders for about one hundred copies waiting attention, have all been filled. It is in uniform style with the two previous volumes, and in mechanical execution, as well as in the character and permanent value of its contents, is at least the equal, if not in some respects the superior of either. It contains 340 pages and about 440 engravings, and is sent by mail post-paid for $1. The three volumes are sent free of expense for $3, and contain, all together, over *one thousand pages and thirteen hundred engravings.*

☞ The Committee appointed on Improved Flax Machinery by the Executive Board o the State Agricultural Society, under the law of the last session of the Legislature, will proceed to the fulfillment of the duties assigned them, the first week in January next. Two establishments, one at Lockport, and the other at Penn Yan, have been entered thus far for examination and competition. A committee on the part of the Rhode Island Society has been appointed on the same subject, and have accepted an invitation to act in concert with the committee of our own Society.

☞ The Trustees of the Agricultural College of Pennsylvania have prepared an interesting pamphlet, comprising a review of the past history of that institution, and showing how in the midst of many embarrassments, they are at length encouraged to believe that the day of gratifying and permanent success has dawned. Many facts are also given as to the course of Agricultural Education in other States and in Europe. Copies of this pamphlet may be had, we presume, by addressing Dr. EVAN PUGH, President, Agricultural College post-office, Penn. The present college year closes Dec. 18th, and the session of 1863 opens Wednesday, Feb. 22d.

☞ Hon T. C. PETERS, Darien, Genesee Co., has lately purchased from the herd of Mr. AMBROSE STEVENS fifteen head of Short-Horns, including the premium heifer calf at the last State Fair, and its mother, with ten other cows and heifers, a young bull and two bull calves, all roan or red and white in color, and affording the basis of a herd which must exert great influence for good upon the stock of his vicinity. Mr. PETERS will now enjoy the opportunity of thoroughly testing the Dairy value of the Short-Horns, and if this object shall have at least an incidental share in his future operations, the farmers of the State may be made the wiser and the richer for his experiments. We hope to hear from time to time of their successful progress.

☞ The Secretary of a County Agricultural Society, whom we charged for his own subscription to the COUNTRY GENTLEMAN, only the same rate which his Society pays for copies awarded as Premiums, instead of $2, as he anticipated,—writes us in reply, as follows:

"I note your reducing my subscription to Co. GENT. for 1863 to Club rates, and take it, as meant as an expression of friendship, although I should be sorry to have asked for any reduction. As you are well aware I should be a subscriber *if the price were doubled;* and it would be hard to find a single year since I have taken the paper in which it has not been worth *five times its cost to me.* The school of experience in farming would be a much more severe and expensive one if we had not the services of such a 'private tutor' as the COUNTRY GENTLEMAN."

BOOK-FARMING.—A subscriber at Ipswich, Mass., in making his annual remittance for the COUNTRY GENTLEMAN, writes as follows:—"I have made some effort to obtain new subscribers for your valuable paper, but our farmers seem averse to "book farming." For the most part they are thrifty and well to do, but they must be stupid if they could not get two dollars worth of *hints* from your paper in a year. Indeed a paper on agriculture must be a stupid thing, if out of fifty-two numbers a man of brains could not get two dollars worth a year. From your paper I am sure I get five times its cost. But then I am no farmer. I have plowed the deep blue waters all my days, but being now "old and well stricken in years," have retired from the ocean, and built me a house and barn on an eight acre lot. My buildings and roads take up about one acre. From the remaining seven I have raised the past season, 10 tons of hay, (not over *estimated,*) 70 bushels potatoes, besides all we used in the family before Sept., 90 bushels corn, (80 bushels to the acre,) measured in baskets, allowing 2 bushels ears to 1 of shelled corn, (cob small and kernel close;) 1 ton squashes; 3 tons pumpkins, latter in cornfield; 2 tons carrots; 2 tons sugar beets; 300 cabbages, and peas, beans, beets, cucumbers, melons, &c., in abundance for family use, and 2 bushels white beans for baking—20 bushels winter apples and 8 barrels cider. I think this pretty well for a new place and a *new* farmer. E. C.

INDIAN CORN.—We have received from Mr. A. Moss, Belvidere, Ill., an ear of Indian corn of remarkable size, which he says was from seed planted in May on good soil, but with no extra care. It is only seven inches in length, but measures eight and a half inches round its largest part, and, as near as we can estimate, has over two thousand kernels.

☞ "It is gratifying to us to know that *during the whole course* of our editorial labors"—says the "Working Farmer" for December—"neither our readers or [nor] the few editors who have endeavored to injure our journal, have ever pointed out a single error in our teachings." The innocent author of this modest remark, must have overlooked much that has appeared for ten years past in the columns of the Agricultural press, or his "gratification" could hardly be so serene as he is fond of frequently representing it. Indeed we are inclined to doubt his acquaintance even with what has appeared editorially in his own columns. Some years ago, for example, he asserted (July, 1853)—and this was then the gist of all his "teachings,"—that an analysis of the soil "within the reach of every intelligent farmer," would show him "not only what it requires to render it fertile, but also the means by which these requirements may be most economically furnished," and, shortly after, that analysis has "arrived at such precision, as to render pre-judgment in Agriculture as certain as in law, physic, or the application of chemistry to any of the useful arts."

Now, following the very article in his December number, which boasts such infallibility, is a second editorial

from the same pen, which *does* most decidedly "point out an error" in the foregoing doctrine. It is poor authority to quote, we admit; but, such as it is, it alleges that analysis can "detect no difference" between "ground rock not fertile, and a very fertile soil"—after which follows the mingled question and exclamation, "*Of what use, then, is the present style of analysis to the farmer?*"

For an answer we beg to refer the querist to any of the volumes of the "Working Farmer" previous to the "discovery of the Progressive theory"—assuring him that, then as now—if his own word is to be taken—they are quite above the suspicion of "error." When the "consulting agriculturist," however, was merged in the "inventor of superphosphates"—or, rather, when fertilizer-making was found to pay better than writing "letters of advice"—then "the present style of analysis" lost its beguiling charms—the more especially since inconsistencies were found to exist between the "teachings" of analysis and the composite ingredients of the fertilizer, which could only be reconciled by the conclusion that either the former or the latter must be comparatively worthless.

☞ When doubt has been expressed as to "whether we can raise roots in this country" to advantage, we have referred to the example of the Farmers of Canada West, with whom they have become a crop of great importance. A friend sends us the results of a "turnip match" just held under the auspices of the Agricultural Society of Guelph, C. W. There were eight competitors. It appears from their returns that all the competing fields were sown on sandy loam fall-plowed, manured with stable manure, plowed once in spring—the turnips sown in rows 30 inches apart, (in one case, no. 1, 31 inches,) and the crop hoed twice, except numbers 2 and 3, which were hoed three times. The following is a summary of other particulars, including the product obtained:

No.	When was the land manured?	Loads pr acre.	Seed pr acre.	Sown June.	Inches apart in row.	No. of bush. pr acre.	No. of acres raised.
1. ..	Before sowing in drill,	16	2½ lbs.	20th	13	880	10
2. ..	do. do.	14	1¼	17	12	720	15
3. ..	do. do.	14	...	17	12	800	8
4. ..	Part fall and spring...	10	1	10-17	14	875	6
5. ..	Manured in drill,.....	16	1	15	12	990	10
6. ..	do. do.	..	1	14	14	800	5
7. ..	Broadcast in spring,..	20	1½	17-22	15	1,050	7
8. ..	— —	..	...	....	15	850	

Nos. 1, 3, 7, and a part of no. 2, were of the variety known as the Marshall; nos. 4 and 5, and a part of no. 2, were the Skirving. The judges were engaged nearly three days inspecting the fields entered for competition. They made their calculations at 60 pounds to the bushel "but they are of the opinion that from 100 to 150 bushels more an acre is the actual amount of production." The premiums were $12, $9 and $8. The 1st was awarded to field no. 7, belonging to Mr. E. McDonald, on which a crop of 1,050 bushels per acre was found standing on the patch examined, and the rest of the 7 acres pronounced equal to it. The 2d premium went to field no. 5, belonging to Stirton & Waters, and the 3d to field no. 4, belonging to G. & J. Wright.

Yield of Carrots and Turnips.—At a recent Root Show of the York Township Ag. Society, C. W., the first prize for carrots was on 984 bushels per acre—the 2d, for 784, and the third, 680. For turnips, 925 bushels per acre took the first prize, 845 the 2d. The report says that owing to the unfavorableness of the last spring the crops were not so heavy as in former years.

Town Ag. Libraries.—For some years past, efforts have been making to establish Town Libraries, composed of works devoted mainly to rural matters. The effort was commenced in Massachusetts, where a large number of these libraries have been established. We are pleased to see that the plan is extending into other States. A correspondent at Rutland, Vt., writes as follows:—"We have recently invested about $250 in an Agricultural Library—in West Rutland they have invested $230, and in Brandon $170, in the same way—in each place forming a Farmers' Club. We have a discussion this evening on ditching or draining lands, with an address from the President of our Club."

☞ In a notice of the exhibition of the Royal Horticultural Society of England, Nov. 11th, we see it stated that the most remarkable feature of the meeting was the wonderfully fine collection of apples, &c., from Canada. Of the pears which were included in this collection, it is said that some unfortunately had greatly decayed, while the greater part were "paler in the skin, and in most instances smaller than the same kinds grown in England. Of grapes there were several dishes of fair size for out-door fruit; but all of them have the wretched foxy taste peculiar to most sorts of American grapes. The sorts called Dalhousie and Ontario, somewhat resemble the Black Hamburgh, from which they appear to be crosses; the Isabella has a grizzly appearance: others consisted of Diana, Delaware, Hamilton Black, Sweetwater, Concord, Lincoln and Rebecca—the last a white sort, with egg-shaped berries, and better in flavor than some of the others." Various examples of cereals—potatoes, onions and carrots, were also included in this magnificent exhibition of Canadian produce.

Acreable Products in California.—The San Joaquin Republican furnishes us a table, compiled from the reports of the assessors, showing the number of acres under cultivation in that county the past year, with the total product, from which it appears that the wheat crop averaged 15 bushels per acre—barley 20—Indian corn 30—buckwheat 20—peas 60—beans 80—potatoes 100—onions 80. These are certainly not very heavy averages for a county, and not so much as we had anticipated from the occasional large crops noticed in the California papers.

Fruit in Worcester Co., Mass.—In your notice of your visit to the Mass. Hort. Exhibition at Boston, you speak of a fine orchard in Grafton. That description will apply to many other orchards in Worcester county. I have seldom known so large a crop of fruit in this vicinity, and never one when the fruit was so large and fine, and free from worms. Whether it be that the curculio has left us, or that he starved out last year, and will come again with an abundance of fruit, I don't know; but we are thankful for a supply of fruit this year, and hope to have a few plums and peaches in future. The *borer* is the worst enemy of the peach tree with me, though I have tried all the remedies for their destruction. Owing to the gum which fills the wounds, it is difficult to follow them, so that every spring I find trees girdled by the grubs. C. W. G.

Big Apples and Potatoes.—A California editor acknowledges the receipt of a Gloria Mundi apple, weighing two pounds, and another editor in the State says he has received three potatoes which weigh *twenty pounds each.*

☞ We regret to have to announce the quite sudden death of JONAS WEBB of Babraham, England, under peculiarly melancholy circumstances. Mr. and Mrs. WEBB were visiting her brother, Mr. Marshall of Cambridge, where Mrs. W., who appears to have been somewhat unwell for several weeks, became worse and died Nov. 5th, a day which had been fixed for her son's marriage. The shock was too much for Mr. WEBB. He became very ill, and died on the 10th, the day on which the funeral of his wife took place.

Mr. WEBB had associated his name inseparably with with those of the most prominent breeders in the history of English Agriculture. His success, owing to a rare combination of good business faculties with matchless skill in the improvement of his stock, was productive of very large pecuniary returns to himself, as well as of great benefit to the flock-masters of every civilized country. It will be remembered that the final disposition of the Babraham South-Downs was decided upon last year, resulting in a sale in 1861 of all, except the lambs, for the aggregate amount of £10,926, and in the sale of the lambs in 1862 for £5,720—the total selling value of the flock having thus been £16,646, or more than $80,000. Mr. W. had been in receipt of a large revenue from the flock for many years, the annual aggregate of his "Lettings" having been from $5,000 to $9,000. He had also a very valuable herd of Short-Horns, and a heavy capital employed upon the extensive farms of which he was the tenant. Death has come to him at a mature age, when the great labor of his life is completed, and in the enjoyment of a well-won and world-wide reputation. As one of our foreign exchanges remarks:—"Every one who had the pleasure of coming into contact with Mr. JONAS WEBB, must have been struck with his frank and manly bearing; and those who have had transactions with him can bear testimony to his strict integrity and undeviating uprightness."

☞ We regret to learn by the Hartford Courant the sudden death of JOHN A. TAINTER, Esq., of that city, of disease of the heart, on the 15th inst. Mr. TAINTOR was widely known and highly esteemed as an importer of improved stock—particularly of Alderney cattle, and, in past years, of Merino sheep. It seems from the notice before us, that "he had been aware for months past, that his tenure of life was exceedingly precarious, having suffered very severely from previous attacks of a similar nature."

Beyond the memory of what Mr. TAINTOR has done for the Agriculture of the country, those who have seen him at home will look back upon the cordial greeting and friendly hospitality he was ever ready to extend to his friends, and the pleasure with which he was accustomed to place himself and his time at their disposal. It was during the late show of the Connecticut State Agricultural Society at Hartford that we met him personally for the first time—little thinking that it was also the last, that the only mention of his name to be permitted us in the future was as one whose career of usefulness and activity had forever closed. But the deeds of such men "live after them."

THE WEATHER AS INFLUENCING THE RAVAGES OF THE WHEAT MIDGE.—L. O. B. writes to the COUNTRY GENTLEMAN under date of Akron, Ohio, Nov. 15th:—"Dr. FITCH says that when the latter part of June is wet, the midge will be abundant, and vice versa, which seems to be contrary to the common opinion among farmers here, and contrary to the facts of the case the past and present year. Before harvest it was a common remark that there would be little or no midge this year, as wet seasons were not favorable for them, and although there was a moderate quantity, it was less than last year, which at the corresponding season was quite dry. My own opinion is that the weather has less to do with it than is generally supposed."

☞ A contemporary urges that the Department of Agriculture ought to publish a "Quarterly Journal" for the enlightenment of the farmers of the country, and publishes an extract from a letter by the Commissioner of that Bureau, in which he expresses a desire to do so, and states that he hopes at the coming session of Congress to get an appropriation for the purpose. Our contemporary asserts in the article referred to, that "such a work would not lack for subscribers at a self-sustaining price."

We much regret to differ, most widely, from these views and statements. There is not an argument employed, which would not apply as well to the establishment of a Monthly or a Weekly Journal of Agriculture—nay, which would not, if carried out consistently, authorize the government to go into the periodical business at large, and issue a Daily to supply the people with general news as well as a weekly or a quarterly to supply farmers with "such improvements and discoveries as may from time to time be made." If there *is* public support to render such a "Quarterly Journal of Agriculture" self-sustaining, this alone is reason enough why the Government should not meddle with it.

It is our purpose to take up for consideration at some length, as soon as time permits, what we believe to be the true scope and objects of the Bureau of Agriculture. We cannot now enter into a full discussion of the above proposition without forestalling what we design to say hereafter. But we are unwilling to let the proposition pass without promptly entering our protest against it. The Bureau of Agriculture will find an ample sphere for all its energies in the preparation of an Annual Report that shall fulfil the requisites which intelligent readers have a right to demand in such a volume. Whatever support or aid it may need in accomplishing this end, every friend of Agriculture should be willing to render. If it is to accomplish nothing more than has been done heretofore—greater frequency of publication would be only an aggravation. If, on the other hand, it desires to elevate the standard of its articles, the worst of all possible methods of doing this is to hurry them into print every three months. The result of a "quarterly journal" could only be that what is little now would become still less; that evidence of an ill-digested plan or of absolutely aimless efforts heretofore existing, would become still more plain; that the matter issued would be diluted and weakened, rather than boiled down, systematized and strengthened.

The Journal of the Royal Agricultural Society of England, we may add, is published in Semi-annual parts, and not Quarterly, as our contemporary seems to suppose. We fail to perceive any proper analogy, moreover, between the Journal, or "Transactions" as we style such a work in this country, of an Agricultural Society, and the Annual Report of a Department of the General Government. Secretary CHASE might with equal propriety be urged to modify his yearly budget, with the voluminous documents that accompany it, into a "Quarterly Journal of Finance."

Inquiries and Answers.

PULLING UP BRAKES.—I have for months contemplated writing you on one of my agricultural problems. I have acres of stony, brakey pasture land, that do not furnish half the grass they might for the cows. I have employed a man two months to cut off the bushes and staddles. A low bush 2 feet high, abounds; the brakes in some spots crowd out the grass almost entirely. The land or soil is strong, and would be valuable if drained, stones removed, and brakes killed out. But to ditch it, put the stones into fence, plow and dig out the brakes by hand, would make the land cost in addition to its purchase, as much as meadow. The great problem is, *how to kill the brakes* in such a way as will not make the land cost too much? If you can make some suggestions, or call upon others to do it through your paper, I should be very much obliged, and I hope instructed in such a way as practically to assist me. H. H. [We republish from THE CULTIVATOR of Sept. 1848, the following cut and

description of a root puller, which is probably just what you need. The center wheels A. A., are light and so placed that the puller balances on their axletree in such a way that the heaviest part rests on the cast iron roller B; the man who holds the handles, C, walks over the land as if he were plowing; and whenever he meets a shrub or bush which is to be removed, he presses on the handles and the points of the puller enter the ground behind the roots, while the pulling of the team will lift the whole forepart of the implement up till the desired extraction is accomplished. A bush hook, similar to the above, without wheels or handles, can, we believe, be procured at the Boston Ag. Warehouses, which answers a very good purpose, but cannot be so conveniently handled as the above]

THE HONEY LOCUST FOR HEDGES.—Will you give me information about the Honey locust as a hedge plant—how to manage it, and its adaptability to that purpose? I wish to make a hedge of this, or something better. I have tried the Osage Orange, and although it makes a good hedge, it will get disfigured by dying out for some unknown cause, in places. It is too rapid in its growth, and absorbs a wide space. It has, I think, too large growth, as well as being too tender, for latitude 42° 30'. A. S. Moss. *Fredonia, N. Y.* [The honey locust has been considerably used for hedges; and of late years is preferred to all other plants by some intelligent cultivators. We saw, a few years since, some fine specimens on the grounds of the late William Reid of Elizabethtown, N. J. Its perfect hardiness and formidable thorns are in its favor. The only objection is its want of thick growth. The late A. J. Downing strongly objected to it on this account, remarking "there was no *hedginess* about it." Ellwanger & Barry, on the other hand, have come to the conclusion that it is the best hedge. Some have recommended to allow the trees to grow several feet high, and then to cut them off 3 or 4 feet high: but the best way is to treat them as other hedge plants—that is, to cut back freely; and obtain as thick a growth below as practicable. As it is not so vigorous a grower as the osage orange, it should be cut back but once a year, and never while in leaf. Some of the trees are more thickly set with thorns than others, and perhaps it may be best for that reason to procure the seed from the most thorny trees.]

TOMATO TRELLIS—(*A Subscriber.*)—Training the tomato on a trellis is a neater way, and will be adopted by all those who wish their kitchen garden to present an ornamental and finished appearance, and who do not object to the expense and labor of constructing the trellis and extending the plants upon it. Larger crops may perhaps be thus raised as the stems are kept more nearly upright, and out of each others' way, and the branches evenly distributed; and the fruit is kept from the soil. If not supported on a trellis, the near proximity to the warm earth may ripen some of the fruit earlier; while mulching with clean straw, or better, with recently mowed lawn grass, will keep the fruit clean.

KEEPING APPLES.—(*N. R. C.*)—The oily exudation on the surface of winter apples is said to afford them material protection from decay. Hence if it is rubbed off, the fruit will not keep so well. A neighbor informed us recently that in the spring, wishing to preserve a quantity of Newtown Pippins, he had them picked over and carefully wiped, rubbing them to a polish. The consequence was they rotted in a very short time; while those which had not been touched kept much longer. Will our readers give us their experience? Is not the reason that apples keep better headed up in barrels owing in part to the fact that the surface is not disturbed as when they are picked over in bins or on shelves?

FLAX SEED.—What is the average yield of flax seed to the acre? P. *Montour Co., Pa.* [Twelve to fifteen bushels per acre for a medium crop; eighteen to twenty, a heavy one.]

SEED DRILLS.—Can you inform me of the best and simplest machine for drilling beets, turnips and other small seeds? Also name of manufacturer and price of machine? J. M'L. SMITH. [Good seed drills are manufactured by Emery Brothers, Albany—the price varies, we think, from about four to fourteen dollars, according to size, purposes, efficiency, &c.]

"SORGHUM FOR CATTLE."—In answer to your correspondent "C. R. A.," I would inform him that I have thoroughly tested it this season, and can probably give him the information he desires. In the spring we planted *thirty acres*, intending to make sugar and molasses from it. The crop proved an agricultural success, but owing to the great scarcity of help we were totally unable to secure it. I think I never saw so fine a sight as the cane presented this fall—standing from twelve to fourteen feet high, a solid mass of stalks from one inch to an inch and one-half in thickness. Ten acres we cut and piled up, and fed it out. The cattle relish the seed better than the stalk—the latter the hogs eat with great avidity. For milch cows it is better than for fattening cattle. What remained upon the ground, we turned in our herd of over one hundred head of cattle, and they have done well upon it for the last six weeks—not as well however as I should like to see. Plant it in drills two feet apart, and you will obtain a fine yield of fodder. Cut it when it is above eight feet high. We should prefer corn for fodder, however.

Dwight, Ill. S. T. K. P.

ADOBE HOUSES.—I read the article in the Co. GENT. of Nov. 20, p. 338, on "Adobe as a Building Material," with great pleasure, as I was glad to see this method of building again brought to the attention of the public. Much was said about it some years since, and it was stated that adobe buildings had been erected in or near Geneva and Oswego in this state, in Indiana, Illinois, and a considerable number in Canada West. I should be greatly obliged, as would doubtless many of your readers, to hear from the builders or occupants of these houses, what their opinions are respecting them. Will not some one who has some practical knowledge on the subject, report through your paper? LUCIUS.

CONSTRUCTION OF HORSE STALLS.—Should the floor of a horse stall be made so that the fore feet of the horse will be higher than the hind feet? Can a horse rest as well that way? I notice that when my horses are resting in the field, they stand with their heads down hill—*always*—never the other way. Do they know which is the easiest for them? Or are the stall-makers the wisest? I believe there was a mistake made in my stalls, or else the horses are mistaken. I did not think anything about it at the time of making—only thought about disposing of the water. It seems to me there must be some way of disposing of that, without making the horse stand in a position, which he says as plainly as words can tell, is not an easy one to him. HARVEY.

COUCH GRASS.—I desire information of older farmers, who have pursued a competence under difficulties, of the best method of eradicating what is invariably known in this vicinity, as "*quack grass.*" It is the *Triticum repens*, or *quick grass, couch grass*, or *quick grass* of the botanists. It is a most pestiferous, creeping thing, far more damaging than the Canada thistle, and I think has become more general in the southern part of Onondaga Co. I will state my case fairly, hoping that some good physician will prescribe a remedy, or give counsel that will be soothing. I have 20 acres of spring wheat stubble, in a poor condition (it is a

rather heavy clay loam) studded thick with thistles, and matted tough with *quick grass*. It is seeded to nothing else. My plan is to plow it as early in the spring as practicable, and sow it to buckwheat, which when it has obtained a full growth is to be plowed under, and the ground prepared as thoroughly as time and the season will permit, for winter wheat. It is recommended that buckwheat will shade the ground and kill the quick grass, and if any have known of its use to plow under as a green crop, any information as to method, results, &c, will be gladly received by L. S.

Borodino, Nov. 20th, 1862.

Disease in Sheep's Eyes. — I would like to inquire through the Cultivator, the cause of sheep getting blind. There are two flocks near here that are infected, most of them one eye, some in both eyes. The sight seems covered with a thick substance; in most of them a white appearance; in others it looks blood shot. If it is a disease, as it appears to be, it is new here. Both flocks have been purchased and driven in here within a few weeks. Perhaps eating apples may have caused it, as they have pastured in orchards. They seem affected all at once, and it does not appear to be spreading. The cause and remedy from you or some of your correspondents, would greatly oblige D. E. L. *Saratoga Co.* [Sheep are occasionally liable to diseases of the eyes, from different causes, but we are not sufficiently familiar with them to be able to furnish suggestions by way of remedy or cure. Will some of our experienced readers please give the desired information.]

Raising Lopped Horns.—In answer to an inquiry on this subject, we publish the following, furnished The Cultivator in 1852, by Mr. L. C. Fuller of Kent, Conn. Mr. F. says—The horns of steers can be raised without the least damage to their growth—(the most convenient time to do it is when they are kept in the stable)—by taking two small pulleys; place one of them directly over the front edge of the manger, high enough to be out of the way of the horns—the other at any place you wish, the weight to hang out of the way; pass a cord through them with a loop at one end, to slip over a button on the end of the horn; at the other end attach a weight of from two to four pounds. This should be put on every night when the steers are put in the stable, and be taken off in the morning when turned out. I have never known that operation, when faithfully performed, to fail of raising one or both of the horns to any desired position, in from two to six weeks time. Our success has been such that we consider lopping of one or even both of the horns, no serious objection, provided they are otherwise in good shape.

Canada Postage Stamps.—In remitting you subscriptions will Canada post stamps be received? S. *Liverpool, C. E.* [We take Canada P. O. stamps, when necessary, for small fractions of a dollar, but prefer to have amounts made up so as to render it convenient to send as few as possible]

Soiling Cattle.—I wish to get as good and as cheap a work on "Soiling" as I possibly can. Havn't you something I would like at your office? If you have, will you let me know of your publications, and the prices of each, if more than one. L. B. *Michigan.* [Quincy on Soiling Cattle, sent postpaid for 75 cents, is the only work we have on this subject exclusively, and will repay perusal.]

Shropshire Down Sheep.—Do you consider the Shropshire Down Sheep profitable for Western New-York in every respect? If so, who can I correspond with that has them for sale, that is perfectly reliable? C. R. B. [We have been led to form a very high opinion of the Shropshire Downs, and may refer you to C. B. Meek, Esq., of Canandaigua, not only for the sheep themselves, but also for such farther information as you may require.]

Keeping Apples.—As you have asked the experience of your readers in regard to keeping winter apples, I offer mine. In the fall of 1860, I selected a basket of apples—a few of each variety for exhibition at our Agricultural Fair, and to improve their looks I polished by rubbing with a woolen cloth. I found those thus treated, kept much better than those not polished. You notice this was done in the fall, while in the other case not until spring. We usually head our apples in barrels, letting them stand out until about the middle of Nov. E. P. W. *Belchertown, Mass.*

☞ We are indebted to Prof. James Hall for most beautiful specimens of Fall Pippin, Yellow Bell Flower, R. I. Greening and Newtown Pippin Apples, grown in his garden in this city. It is worthy of note that the Newtown Pippins were without a blotch and as perfect and handsome as any one could desire.

[For the Country Gentleman and Cultivator.]

"HOW MANY CARROTS PER ACRE."

Messrs. Editors—In answer to the inquiry of Mr. S. G. Collins, in your number of Nov. 27, I give you the result of my efforts the past season upon one acre of land under the system suggested by W. S. H. Welton, Esq., of Grand Rapids, in this State.

The soil is a sandy loam on a clay subsoil not very far below. It had been broken up two seasons previously and an old turf turned under. The first season it was devoted to potatoes, the first crop I suppose ever raised from it besides grass; and the second year to carrots, with a fair manuring. This year it was well manured again, sowed with carrots in drills three feet apart, and cultivated with horse power. At the proper stage of growth the rows were thinned by the hoe, leaving as a rule the plants the width of the hoe apart. About the middle of July the spaces between the rows were sowed with flat turnip seed, by hand. No more weeding was done, the turnips sown taking the place of those unwelcome intruders with their broad leaves. In part of one row in carrots where the seed failed, mangolds were sown. The labor expended in weeding was nothing comparatively.

Now for the crop: We harvested, by measure, one thousand bushels of excellent carrots—two hundred and fifty bushels white turnips, and thirty bushels mangolds, worth in the Detroit market, five and a half miles distant, as follows:

Carrots, 30c. per bushel,	$300
Turnips, 20c. do.	56
	$356

So much for reading your valuable journal, and the pursuit of "book farming."

I consider the crop invaluable for stock, especially milch cows and colts, of which latter I raise a great many; and I would say to Mr. Collins, keep on with the culture—it is the carot-*id artery* of pleasant and profitable stock husbandry. E. N. Willcox. *Whitewood, Wayne Co., Mich.*

[For the Country Gentleman and Cultivator.]

DEEP PLOWING &c.

Editors Co. Gentleman—I will give my experience of deep plowing. I have a field that was tramped in the spring when wet, by hauling gravel over it for a railroad, and it was cut up into a perfect road. There were six acres in the field, and they went from one corner to the other the long way, and in the summer when it dried off, it was as hard as a road could be, with gravel scattered all over it, and I thought the field was ruined. The soil is a stiff clay. I plowed it in the fall, and the next spring sowed it in oats, and had a good crop; but after that it became so sodden and heavy, that it would not produce anything but the wiry kind of blue grass that is so injurious to wheat in some parts of the country; and when the field was sown in wheat, it did not produce more than five or six bushels to the acre.

Having read several accounts of the benefit of deep plowing for such soil, I thought I would try it; so I went to a plow maker and got him to make a double Michigan plow for me, and make it strong and good, so that it would not wear out, while plowing a small patch, as some of them do that are made to sell. I paid him five dollars extra for it. When I got it, I plowed the above mentioned field in November, and in the spring following stirred it with a two horse plow—(by the way, my double plow is a four horse plow, and it does the work the best of any plow I ever worked with)—and sowed it in buckwheat, and in August, when the buckwheat was in full bloom, I plowed it under by fixing a chain to drag the top down so the plow would cover it good. Then in September I harrowed it, and drilled it in wheat, putting one and a half bushels of seed to the acre, without any other ma-

nure than the buckwheat, and the result is, I harvested twenty bushels of first quality wheat to the acre, the first crop.

I now have the field sowed in peavine clover, which I think is the best kind for enriching the land, and my calculation is to plow it under with a full crop on it, and plow it with my four horse plow and sow it to wheat, then in clover, until it gets mellow again, and then if I live I will report the result.

I plowed a piece of creek bottom land for corn, and increased the first crop after deep plowing fifteen bushels to the acre, and without any manure, for I put all the manure on my clay land. J. L. V. M.

Green Co., Ohio.

LARGE AND SMALL HORSES.

It is well known to scientific men that a model is stronger, more perfect, and will work better than a full sized machine. The reason is this, that while the cross-section or real strength of each part increases as the *square* of the lineal dimensions, the weight increases as the *cube*—to which is to be superadded the increase of momentum of every moving part as the increase of diameter. If, for example, a model is six inches long, and the full sized machine five feet, every part of the latter is made ten times as great in diameter, and a hundred times as strong or greater in cross section. But the weight is increased as the cube or a thousand times. While the large machine, therefore is a hundred times as strong, every part becomes a thousand times as heavy, and the momentum of every moving part is increased ten thousand times — tending to knock the whole to pieces. Hence, while the small machine or model may be quite strong enough for all that is required of it, the larger one may be quickly deranged or broken. For this reason, we perceive the wise provision in Creation, of all animals being made more massive in structure as they become larger. An elephant is, as he must be, more massive and muscular in proportion than smaller animals. A spider may drop ten feet without being injured; but made the same shape, and weighing half a ton, and he could not stand; his own weight would crush him.

Now, the question occurs, how far does the same principle apply in the selection of horses? As a *general average*, horses consume food according to their weight; a horse weighing 1,200 pounds, will eat one-half more than one weighing 800. It is doubtful if he is proportionately effective. The Maine Farmer says, "one of the most experienced horsemen,—one who knows so much about a horse, that what he don't know isn't worth knowing,—is of the opinion that for all general purposes, a 900 lb. horse is better than one which goes above this, say eleven or twelve hundred. He has found that a horse weighing 900 lbs. will do all the work of a horse 200 lbs. heavier, with as much endurance, and with less feed." In Maine, however, oxen are largely employed for slow heavy work; and it may be that when horses take their place, a heavier sort may be desirable. The time of the driver is more valuable than that of the team, and it becomes an object for the team to execute as much under his care as practicable. It is now well established that a three horse team working all abreast, will do nearly if not quite as much labor as a four-horse team with two ahead. The three horse team is easily managed by a single driver, who will hold a plow and drive the three without difficulty. Horses should therefore be large enough that three may do any work on the farm. The question is, are not three small ones better than two large ones? Every one knows that some horses of equal size are much superior to others; but taking the best of any size, which is the most profitable, all things considered? Shall we not have the model principle, above mentioned, practically and accurately tested by a series of experiments?

HAY REQUIRED FOR SHEEP.

One ton of good hay is thought sufficient to keep five sheep through the winter, by J. M. Smith of Somerset Co., Maine, who keeps about 150 fine-wool sheep, now averaging six pounds per head. The time of feeding is about five months. Good care and shelter are given, and are considered very important requisites to profit.

Another farmer of the same county, S. Dinsmore, Esq., regards the feeding season as 160 days, and considers 2¼ pounds of hay per day, a sufficient amount for a sheep, taking the average of flocks. By improvements in breeding he now clears $100 per year extra from the same number of sheep kept formerly, at the same expense for feeding.

Queens County Agricultural Society.

The Annual Meeting of the above Society was held at the Court House on Thursday, Dec. 4. The President, Daniel K. Youngs, Esq., in the chair. The attendance of members was large, and the usual Premiums were awarded on Field Crops, Grain, Butter, Vegetables, Fruit and Poultry. The Treasurer reported the balance on hand, after paying all expenses, about $1,600. The following officers were unanimously elected:

President—John C Jackson, Newtown.
Vice President—Townsend D. Cock, Locust Valley.
Secretary and Treasury—John Harold, Hempstead.
Directors—S. M. Titus, Glen Cove, and S. B. Mersereau, Hempstead, for three years, and John I. Van Alst, Newbern, for two years.

We notice among the premium Field Crops reported, that of Indian corn, for which the prize was given, and the yield of which was reported at 101⅜ bushels on one acre. It was produced by Thomas Youngs, of Oyster Bay Cove, who submitted the following statement:—

The soil was in medium condition, having been in pasture for the last four years. On the 21st Oct., 1862, carted and spread garbage on the sward at the rate of 50 New-York carman loads to the acre. June 30th, 1862, spread on the corn, 12,000 fish to the acre. Plowed the sward April 30th, with a two-horse iron beam plow (called the Clipper Eagle,) from 5 inches to 6 inches deep. It was marked out with a sled with three runners, four feet apart, drawn by two horses. Planted 12th of May, and came up about the 20th. Five or six kernels were dropped in the hill; five stalks were designed to be left in the hill; variety, eight row white flint. Was plowed three times and hoed once. The top stalks were cut about 25th September. Two large loads of stalks, worth $4.00 per load. The corn was measured into one and a half bushel basket which made 231 bushels of ears. The whole of the corn was weighed, and there were 7,365 pounds. I then shelled two baskets and the shelled corn weighed 73½ pounds, which makes 101⅜ bushels, at 56 pounds to the bushel.

Value of Crop.

101⅜ bushels of corn, 70 cts.	$71.16	
Worth of stalks in the lot,	8.00	
Total,		$79.16

Expenses.

Cost of garbage at the Landing,	$10.00	
One man and team one day carting,	3.00	
12,000 fish, at $1.00 per 1000,	12.00	
Carting fish,	2.00	
One man and team, plowing and harrowing, one day,	3.00	
Marking and planting,	1.00	
Three times plowing,	2.00	
Hoeing once,	75	
Five men one day harvesting,	5.00	
Total expense,		$38.75
Profit of crop,		$40.41

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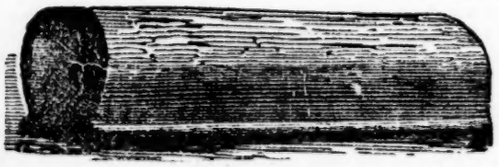

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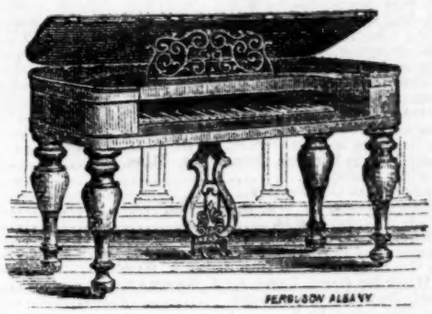

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CONTENTS OF THIS NUMBER.

THE FARM.

Our Thirtieth Year, ... 9
A Glance Forward, ... 9
The Growth of Forest Trees, by R. S Fay, ... 12
How to Dissolve Bones, by B., ... 13
Economical Manuring for Spring Grain, by J. W. Clarke, ... 14
Scientific View of the "Progression of Primaries," by Prof. S. W. Johnson, ... 16
Benefits of Underdraining, by Hon. A. B. Conger, ... 19
Low Farming in Germany, by W. von Laer, ... 20
The Action of Gypsum, by J. Perrault, ... 22
The Potato Crop of 1862, by H., ... 22
Pruning and Thinning Forest Trees, by Levi Bartlett, ... 23
Cotton Growing in New-Jersey, by Dr. S. G. Cattell, ... 23
The Best Way to Harvest Corn, by A. Moss, ... 23
Excavating Drains, ... 25
Illinois Sorghum Convention, ... 26
The Crops of Iowa, by Wm. D. Wilson, ... 27
Irrigation of Grass Lands, ... 27
Cleaning Seed Wheat, &c., by John Johnston, ... 28
Management of Permanent Grass Lands, by John Bull, ... 28
Cotton Growing in South Illinois, by A. Babcock, ... 28
Fresh Muck for Grass Land, by J. Richman, ... 28
Abstracts from Our Exchanges, ... 29
Surface Manuring, by S., ... 30
Letter from California, by S. W. Jewett, ... 30
How to Destroy Quack Grass, by W., ... 31
Notes for the Month, ... 32
Inquiries and Answers, ... 35
How Many Carrots per Acre, by E. N. Wilcox, ... 36
Deep Plowing, &c., by J. L. V. M., ... 36
Queens County Agricultural Society, ... 37

THE GRAZIER AND BREEDER.

Early Care of Fattening Animals, ... 10
Feeding Racks for Horses, ... 14
Long Wooled Sheep, by I. D. G. Nelson, ... 17
Ventilation of Stables, by S. E. Todd, ... 19
Feed of Farm Horses, ... 22
Hurdling Sheep on Green Crops, by John Bull, ... 23
Winter Management of Sheep, by G. M. S., ... 27
Large and Small Horses, ... 37
Hay Required for Sheep, ... 37

HORTICULTURAL DEPARTMENT.

Removing the Wood from the Bud in Budding, ... 11
The Ribston Pippin, ... 11
The Peach Tree Borer, by T. V. P., ... 12
Pear Tree Blight, ... 13
Hale's Early Peach, ... 13
Protecting Young Trees from Rabbits, by R. Andrews, ... 14
Apple Tree Borer, by T. V. P., ... 15
A Word Concerning the Register, Curculio, &c., by C. R. C. Masten, 18
Saving Dahlia Roots through Winter, by S. Worden, ... 21
Henderson's Perfection Sweet Williams, ... 24
The Jeffries Apple, by A. G. Hanford, ... 25
How to Keep Rabbits from Young Trees, ... 27

RURAL ARCHITECTURE.

Concrete Houses, by A. S. Loveland, ... 22

THE DAIRY DEPARTMENT.

A California Cheese, ... 23
Feeding Milch Cows in Winter, by F., ... 31

THE POULTRY YARD.

Poland Top-Knot Fowls, by C. N. Bement, ... 24

ENTOMOLOGY.

The Onion Fly, by Dr. Asa Fitch, ... 24

THE BEE-KEEPER'S DEPARTMENT.

Wintering Bees, by C. J. Robinson, ... 18

DOMESTIC ECONOMY.

A Good Substitute for Coffee, by L. Norris, ... 12
Cookies that Will Keep, ... 22
Chickory Coffee, ... 31
How to Make an Omelet, by H. H., ... 31
Coffee Made from Carrots, by S., ... 31

SCIENCE AND ART.

Manufacture of Gunpowder and Saltpetre, by S. P. Keator, ... 15

ILLUSTRATIONS.

Feeding Rack for Horses, ... 14
Sweet Williams, ... 24
Onion Fly, ... 24
Poland Fowls, ... 25
Draining Implements, ... 25
Brake Puller, ... 35

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